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No. ___
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IN THE

Supreme Court of the United States

WORLDCOM, INC., AT&T CORP., AND
COVAD COMMUNICATIONS COMPANY,
Petitioners,

v.

UNITED STATES TELECOM ASSOCIATION, *et al.*,
Respondents.

Petition for a Writ of Certiorari to the United States Court of Appeals for the D.C. Circuit

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PETITION FOR A WRIT OF CERTIORARI

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QUESTION PRESENTED

Under *AT&T Corp. v. Iowa Utilities Board*, 525 U.S. 366 (1999), *Verizon Communications Inc. v. FCC*, 122 S.Ct. 1646 (2002), and the provisions of the Telecommunications Act of 1996, may the FCC require incumbent telephone monopolists to lease elements of their network to competitors based on the FCC's findings that the ability of hundreds of firms to provide competing services will be materially lessened if they must obtain the elements from sources outside the incumbents' networks, or must the FCC also satisfy extra-statutory requirements in order to address putative adverse effects that the leasing of those elements will have on investment in alternative facilities?

LIST OF PARTIES AND CORPORATE DISCLOSURE STATEMENT

The parties to the proceedings before the D.C. Circuit included: United States Telecom Association; the Federal Communications Commission; the United States of America; WorldCom, Inc.; AT&T Corporation; Covad Communications Company; BellSouth Corporation; Birch Telecom, Inc.; CO Space Services, LLC; Contel of Minnesota, Inc.; Contel of the South, Inc.; GTE Service Corporation; GTE Alaska Incorporated; GTE Arkansas Incorporated; GTE California Incorporated; GTE Florida Incorporated; GTE Hawaiian Telephone Company; GTE South Incorporated; GTE Midwest Incorporated; GTE Southwest Incorporated; GTE North Incorporated; GTE Northwest Incorporated; ICG Communications, Inc.; Micronesian Telecommunications Corporation; MPower Communications Corp.; Network Access Solutions, Inc.; Network Access Solutions Corp.; Prism Communications Services, Inc.; Qwest Communications International Inc.; Qwest Corporation; Rhythms Netconnections, Inc.; SBC Communications Inc.; Sprint Corporation; Verizon Telephone Companies; Verizon California, Inc.; Verizon Delaware, Inc.; Verizon Florida, Inc.; Verizon Hawaii, Inc.; Verizon Maryland, Inc.; Verizon New Jersey, Inc.; Verizon New York Inc.; Verizon Pennsylvania Inc.; Verizon Virginia Inc.; Verizon Washington, DC Inc.; Verizon West Virginia Inc.; Verizon New England Inc.; Verizon South Inc.; Verizon North Inc.; Verizon Northwest, Inc.; Verizon West Coast Inc.; Association of Communications Enterprises; Association for Local Telecommunications Services; Competitive Telecommunications Association; Telecommunications Resellers Association.

Pursuant to Supreme Court Rule 29.6, petitioners state as follows:

WorldCom, Inc., through its wholly owned subsidiaries, provides local, long-distance and other telecommunications services domestically and internationally. WorldCom, Inc., is a publicly traded company under the symbols "WCOEQ" and "MCWEQ." AXA Financial, Inc. owns more than 10% of the stock of WorldCom, Inc. WorldCom, Inc. owns controlling interests in Embratel Participacoes S.A., and Digex, Inc., both of which issue share to the public.

AT&T Corp. provides telecommunications and other services. AT&T has no parent company. No publicly held company owns 10% or more of AT&T stock.

Covad Communications Company is a competitive local exchange carrier whose general nature and purpose is to sell to Internet service providers on a wholesale basis, and to business and consumers on a retail basis, high-speed digital data services known as digital subscriber line ("DSL") and T1, as well as other vertical services associated with Internet access, such as managed security and virtual private networking. Covad Communications Company is a wholly owned subsidiary of Covad Communications Group, Inc., and has not issued any stock or other securities to the public. No publicly held company owns 10% or more of Covad Communications Group stock.

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WorldCom, Inc., AT&T Corp., and Covad Communications Company petition for a writ of *certiorari* to review the judgment of the United States Court of Appeals for the D.C. Circuit.

OPINIONS BELOW

The opinion of the United States Court of Appeals for the D.C. Circuit is reported at 290 F.3d 415 (D.C. Cir. 2002), and is reprinted at Pet. App. 1a-26a. That decision reviewed the Federal Communication Commission's ("FCC") Third Report and Order and Fourth Further Notice of Proposed Rulemaking, *In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, CC Docket No. 96-98 (Nov. 5, 1999) ("*UNE Remand Order*"). The *UNE Remand Order* is published at 15 F.C.C.R. 3696 (1999), and excerpts are reprinted at Pet. App. 27a-233a. The decision below also reviewed the FCC's Third Report and Order, *In re Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147 (Dec. 9, 1999), which is published at 14 F.C.C.R. 20912 (1999), and *order on recons.*, which is published at 16 F.C.C.R. 2102 (2001) ("*Line Sharing Order*"); excerpts are reprinted at Pet. App. 234a-296a. The order of the D.C. Circuit denying rehearing and rehearing *en banc* is reprinted at Pet. App. 297a-298a.

JURISDICTION

The Court of Appeals had jurisdiction pursuant to 28 U.S.C. § 2342(1) and 47 U.S.C. § 402(a). The D.C. Circuit entered its decision on May 24, 2002, and denied rehearing and rehearing *en banc* on Sept. 4, 2002. This Court has jurisdiction pursuant to 28 U.S.C. § 1254(1).

STATUTORY PROVISIONS INVOLVED

This case involves the Telecommunications Act of 1996 ("1996 Act" or "Act"), Pub. L. No. 104-104, 110 Stat. 56,

codified at 47 U.S.C. §§ 151-276. The relevant provisions of the 1996 Act are reprinted at Pet. App. 299a-308a.

STATEMENT OF THE CASE

This petition seeks review of basic questions under the Telecommunications Act of 1996 that possess such national importance that this Court has addressed them in two prior decisions. The questions are before the Court again because the Court of Appeals for the D.C. Circuit has here resolved them by adopting views that were set forth in the *dissenting* opinion in one of those decisions, and that were rejected by the seven-member majority of the Court.

The Federal Communications Commission ("FCC") and many state utility commissions have adopted regulations that implement the 1996 Act by requiring incumbent local telephone monopolists to lease combinations of their network facilities to would-be competitors at rates based on the long-run incremental cost of those network elements. In last Term's decision in *Verizon Communications Inc. v. FCC*, 122 S. Ct. 1646 (2002) ("*Verizon*"), this Court upheld the FCC's ratemaking standard on the ground that the 1996 Act's objective is to "'jump-start'" local competition by giving "aspiring competitors every possible incentive to enter local retail telephone markets, short of confiscating the incumbents' property." *Id.* at 1661 (citation omitted). The Court rejected the dissent's assertion that these rules were inconsistent with a statutory objective of fostering facilities-based competition. *Compare id.* at 1672 n.27 *with id.* at 1693-94 (Breyer, J., dissenting in relevant part).

In the earlier *AT&T Corp. v. Iowa Utilities Board*, 525 U.S. 366 (1999) ("*IUB*"), the Court upheld the FCC rules that allow new competitors to lease all the incumbent's network elements, *id.* at 392-93, and to obtain existing preassembled

combinations of them, *id.* at 393-95. At the same time, the Court vacated the FCC rules that defined the particular network elements that must be made available on the narrow ground that the FCC had made the statutorily required findings of "impairment" while ignoring whether new entrants could obtain network elements from sources outside the incumbent's networks, and by presuming that minor cost or quality differences would establish impairment even when new entrants could profitably provide service if access to the element were denied. *Id.* at 387-92.

In the orders at issue in this case, the FCC fully responded to this Court's decision in *IUB*. Specifically, the FCC adopted a narrower list of network elements by applying an impairment standard that fully considered economic alternatives to the incumbents' facilities and that addressed only those cost or quality differences that could materially affect the competitors' ability to provide service. However, in the decision under review, the D.C. Circuit held that the *UNE Remand* and *Line Sharing* Orders are legally insufficient, and imposed extra-statutory requirements in order to address concerns about the effects of unbundling on facilities investment raised in the dissenting opinion in *Verizon,* but rejected by the majority of the Court. As explained below, review and reversal of the D.C. Circuit's decision is essential to assuring that the 1996 Act and its critically important goals are not subverted.

A. The 1996 Act

The 1996 Act was designed to end the monopolies that have dominated local telephone services in this nation for the past century and to introduce competition into these markets "as quickly as possible," H.R. Rep. No. 104-204 at 89 (1995) ("H. Rep."). To that end, Congress preempted all state laws restricting local competition, including the exclusive franchises states had historically granted incumbents to provide local

service. Congress recognized, however, that merely removing legal impediments to entry would not promptly bring about robust competition. "[B]ecause the investment necessary is so significant," competitors could not quickly replicate the ubiquitous networks that the incumbents had built up over decades under a regime funded by captive customers. *See* H.R. Conf. Rep. No. 104-458, at 148 (1996).

Thus, the Act also establishes three different modes of competitive entry, and expresses no preference among them. 47 U.S.C. §§ 251(c)(2), (3), & (4). One of these vehicles is entry through construction of alternative facilities, which the Act authorizes by mandating that incumbents "interconnect" with alternative networks. *Id.* § 251(c)(2). But because construction of extensive alternative networks is infeasible, the Act also allows entry through resale of the incumbents' services, *id.* § 251(c)(4), and through leasing elements of the incumbents' networks at cost-based rates, *id.* § 251(c)(3).

The Act requires the FCC to adopt regulations implementing the requirements of § 251, and provides that when the FCC decides which network elements should be made available for leasing, it should "consider, at a minimum, whether . . . access to such network elements as are proprietary in nature is necessary," and, for non-proprietary elements, whether "the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer." *Id.* § 251(d).

Pursuant to the Act, the legal relationships between the incumbent and competitive carriers are governed not by FCC regulations, but by interconnection agreements that are established by each of the 50 state utility commissions. In establishing these agreements, each state commission is to apply not only the FCC's regulations, but also the

"requirements of § 251" and independent "requirements of state law." *Id.* §§ 252(c)(1), 252(e)(3). The Act provides that FCC regulations cannot preempt state access and interconnection regulations unless they "substantially impede the implementation of the requirements of § 251 and the purposes of this part [of the Act]." *Id.* § 251(d)(3); *see also id.* § 261(c). State commission decisions approving interconnection agreements are reviewable in a federal district court in that state. *Id.* § 252(e)(6).

B. The FCC's Initial Rules Under the 1996 Act and *AT&T Corp. v. Iowa Utilities Board*

The FCC issued its initial implementing regulations on August 8, 1996. *See In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, 11 F.C.C.R. 15499 (1996) ("*Local Competition Order*"). These rules required the incumbents to unbundle each element of their network and allowed new entrants to provide service by leasing all the elements in combined form, such that they would provide only retail and related functions themselves. *See* 47 C.F.R. §§ 51.315, 51.319; *Local Competition Order* ¶¶ 328-340.

In *AT&T Corp. v. Iowa Utilities Board,* the Supreme Court set aside this Order on one narrow ground. It held that the FCC's construction of the impairment standard under § 251(d)(2) had been too broad, for in unbundling all elements the FCC had not considered whether competitors could economically provide service by obtaining alternatives to network elements from outside the incumbents' networks. *IUB*, 525 U.S. at 389. In addition, the Court held that the FCC had improperly assumed that "any" increase in cost (or decrease in quality) that resulted from denial of access to an element constituted impairment, even if competitors could still earn "profits" of "99%" from its service. *Id.* at 389-90. The Court

directed the FCC to adopt a "rational basis" for determining which network elements must be made available, "taking into account the objectives of the Act and giving some substance to the necessary and impair requirements." *Id.* at 391-92.

Because the Court recognized that the FCC could adopt the same list of network elements on remand, the Court went on to address, and reject, the incumbents' other challenges to the unbundling requirements. First, the Court held that there was nothing in the statute's text or purposes that precluded the FCC from requiring incumbents to make available all the elements of their networks and allowing competitors to provide service by leasing all elements and providing only retail functions. *Id.* at 392-93. Second, the Court rejected the incumbents' claim that the FCC's requirement that unbundled elements be provided in combined form was unlawful because it would give competitors "arbitrage" advantages in serving business customers that have been charged above-cost rates to subsidize universal service. *Id.* at 393-94. The Court held that because "§ 254 [of the Act] requires that universal service subsidies be phased out," any existing implicit subsidies are "temporary" and irrelevant to unbundling determinations. *Id.*

In a separate opinion, Justice Breyer set forth a different view of the Act's goals. He viewed any "competition" that emerged solely from new entrants' leasing unbundled elements as not "meaningful," and as defeating the statute's supposed overriding objective of fostering facilities-based competition. *Id.* at 429 (Breyer, J., concurring in part, dissenting in part). He further asserted that "compulsory sharing can have significant administrative and social costs inconsistent with the Act's purposes." *Id.* at 428.

C. The Further FCC Orders At Issue

UNE Remand Order. In response to the Supreme Court's ruling in *IUB*, after notice and comment, the FCC released its 529-paragraph *UNE Remand Order* — the principal order under review in the proceeding below. The order altered the FCC's definition of "impair." It determined that a requesting carrier is "impaired" without access to a particular element if "taking into consideration the availability of alternative elements outside the incumbents' network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that element materially diminishes a requesting carrier's ability to provide the services it seeks to offer." *UNE Remand Order* ¶ 51 (Pet. App. 73a-74a); *see also* 47 C.F.R. § 51.317(b)(1).

The FCC made clear that its new standard did not merely require a showing that a new entrant would be marginally worse off without the element. Rather, there must be "*substantive differences* between the alternative outside the incumbent LEC's network" that materially diminish a requesting carrier's ability to provide the services it seeks to offer as a practical, economic, or operational matter. *UNE Remand Order* ¶ 51 (emphasis added) (Pet. App. 73a-74a). To make determinations of the practical, economic, and operational effect of denials of access, these rules require assessment of a range of factors, including whether the competitor would incur increased costs, delays, poorer quality service, operational or technical limitations on its services, or limitations on the ubiquity of its offerings if the particular network element were unavailable. *UNE Remand Order* ¶¶ 23, 62-100 (Pet. App. 52a, 82a-111a); *see also* 47 C.F.R. § 51.317(b)(2).

The *UNE Remand Order* concluded that three kinds of cost disparities are relevant to determinations of impairment if

network facilities are not available for lease and competitors must self-supply their own: (1) disparities caused by economies of scale that give competitors higher unit costs in the early stages of entry, ¶ 76 (Pet. App. 92a); (2) disparities caused by the competitors' need to invest in "sunk" facilities that duplicate those of the incumbent, that cannot be deployed for other purposes if the local entry is unsuccessful, and that create a "barrier" to facilities-based entry, ¶ 77 (Pet. App. 93a-94a); and (3) disparities caused by other "additional costs" that competitors incur, that incumbents do not, and that are thus also entry barriers, ¶ 78 (Pet. App. 94a). *See generally id.* ¶¶ 75-86 (Pet. App. 91a-100a). The FCC stated that it could not find impairment based "solely" on the "existence of economies of scale," but that economies of scale were a "relevant factor" that could be a basis for finding impairment in conjunction with the other identified cost disparities that together create entry barriers. *Id.* ¶ 88 (Pet. App. 101a-102a). The *UNE Remand Order* further provides that because retail prices and profit margins will change in response to competition, the Commission's impairment determinations will rest only on material cost differences and will not consider profitability under current retail prices. *Id.* ¶ 73 (Pet. App. 90a-91a).

The FCC further determined that, where impairment is found under this standard, the availability of unbundled elements will not have an adverse effect on facilities-based competition, and will in fact promote it. *Id.* ¶¶ 5, 7, 112, 127 (Pet. App. 30a-33a, 117a-118a, 128a). It found that it is "reasonable" to assume that competitive carriers "prefer to use their own facilities or alternatives outside the incumbents' network, in order to reduce their reliance on a primary competitor" and that they "will deploy alternative facilities as soon as it is technically and economically possible to do so at a cost that is close to the incumbent LECs' prices for network

elements." *Id.* ¶ 112 (Pet. App. 117a-118a). The FCC further found that unbundled access to elements "will accelerate initially competitors' development of alternative networks because it will allow them to acquire sufficient customers and the necessary market information to justify the construction of new facilities." *Id.* It noted that the actual experience of significant competitor investment confirmed these findings. *Id.* ¶¶ 137-138 (Pet. App. 134a-137a). The FCC similarly found that unbundling obligations would have no material adverse effect on investment by the incumbents both because the evidence established that incumbents had continued aggressively to invest in networks in response to actual or prospective facilities-based competition, *id.* ¶ 138 (Pet. App. 135a-137a), and because the FCC's standard for pricing network elements compensates incumbents for all the risks that they incur in making innovative investments, *id.* ¶ 139 (Pet. App. 137a-138a).

Finally, the FCC generally found that the deregulatory and other objectives of the Act would be furthered by a "national list of elements *that contains discrete geographic and product market exceptions*" for any specific markets where the FCC could find that competitors would not be impaired without access to network elements. *UNE Remand Order* ¶ 143 (emphasis added) (Pet. App. 140a-141a); *see also id.* ¶ 120 (Pet. App. 123a). But the FCC found that there was then only one such specific market — the larger business customers in dense metropolitan areas who could be served through alternative switches. *Id.* ¶¶ 276-289 (Pet. App. 171a-183a).

Taking all factors into account, the FCC adopted a "minimum list of network elements that should be unbundled on a national basis," but also denied access in most contexts to the incumbents' operator services and directory assistance platforms, and placed geographic and customer segment

limitations on unbundled access to the incumbents' switching facilities. *Id.* ¶¶ 120-143, 276-278 (Pet. App. 123a-141a, 171a-174a).

Line Sharing Order. The FCC undertook further unbundling in its *Line Sharing Order*. There the FCC concluded that the incumbents were also obliged to lease the "high frequency" portion of the copper lines that run from the consumer's home to the incumbents' switches. The incumbents used this high frequency portion of the line to provide high-speed Internet access services through digital subscriber line ("DSL") technology, which permits the high-speed transmission of data over the same line that is used to provide voice communications over its low frequency channel. The Commission determined that new entrants that want to provide their own DSL services should be able to share the incumbents' lines for this purpose. *Id.* ¶¶ 20-61 (Pet. App. 254a-288a). Without this sharing of loops, the Commission concluded a new entrant that did not provide voice service would be impaired — indeed, precluded — from providing the DSL services that "it seeks to offer." 47 U.S.C. § 251(d)(2); *Line Sharing Order* ¶ 35 (Pet. App. 266a).

D. *Verizon Communications Inc. v. FCC*

While the FCC was addressing this Court's remand in *IUB*, the incumbents' challenge to the leasing rules continued as an attack on the *rates* at which unbundled network elements are made available. In *Verizon Communications Inc. v. FCC*, this Court overturned the Eighth Circuit decision invalidating the FCC's pricing rules on substantive grounds.

The Court's opinion in *Verizon* necessarily addressed the same policy arguments that undergird the closely related challenges to the unbundling rules at issue here. The Court explained that Congress passed the Act "with the aim not just

to balance interests between sellers and buyers, but to reorganize markets by rendering regulated utilities' monopolies vulnerable to interlopers." *Verizon*, 122 S. Ct. at 1661. The decision further emphasized that Congress found competition through the use of unbundled elements to be a critical method of breaking apart the entrenched monopolies that provide local phone service.

The Court rejected the incumbents' contention that Congress's primary goal in the 1996 Act was to foster facilities-based entry by competing carriers, and held that the Act permitted the adoption of rules that would maximize the number of "potential entrants," while "lessen[ing their] incentives to build their own bottleneck facilities." *Id.* at 1672. It further held that the incumbents' claim that the FCC's rules would deter facilities investment was baseless. It was wrong as a matter of economic theory because, among other things, new entrants had powerful incentives to build their own facilities to "obtain independence from an incumbent's management and maintenance of network elements." *Id.* at 1670. And the claim "founders on fact" because there had been massive facility investments since the rules were adopted. *Id.* at 1675-76.

Justice Breyer dissented, reiterating his more limited view of the role of leasing in promoting competition under the Act. According to the dissent, new entrants "do not compete in respect to the facilities that they share" by leasing them from incumbents, and "widespread sharing" of incumbents' networks actually conflicts with the Act by discouraging more beneficial facilities-based competition. *Id.* at 1693 (Breyer, J., dissenting in relevant part). Furthermore, the dissent asserted that the FCC's rules stifle investment and innovation. *Id.* at 1692-94.

E. The D.C. Circuit's Decision Below

Ten days after this Court decided *Verizon*, the D.C. Circuit issued the decision under review. It did not dispute that the FCC's *UNE Remand* and *Line Sharing* Orders had fully responded to this Court's holding in *IUB*, and it acknowledged that the statutory term "impairment" imposed no other specific limitation on the FCC. But the court nevertheless imposed additional evidentiary and explanatory burdens on the FCC — each of which relates to the concerns about the effects on investment expressed in the separate opinion in *IUB* and the dissent in *Verizon*. There are three separate aspects of the D.C. Circuit's decision.

First, the court faulted the FCC for adopting national unbundling rules that did not consider the "market-specific variations in competitive impairment" that result from retail rate structures in which below-cost rates are charged to "rural and/or residential" customers and "cross-subsidiz[ed]" by above-cost rates charged to other customers. Pet. App. 10a. It believed that this failure and the purported lumping together of high cost and low cost customers in a single national market could have resulted in unbundling "in many markets where there is no reasonable basis for thinking that competition is suffering from any impairment of the sort that might have [been] the object of Congress's concern." Pet. App. 10a-18a.

The court then went on to address whether, notwithstanding its view that there had not been valid nationwide findings of impairment, the FCC had made other findings that would be sufficient to uphold the national unbundling rules. It held that these rules could not be upheld on the ground that they promote competition, relying on Justice Breyer's view that broad unbundling rules impede the competition through alternative facilities that is the primary object of the Act. Pet. App. 14a-15a, 17a.

Second, the D.C. Circuit held that the FCC's standard of impairment violated the Act because it relied on economies of scale that operated to give new entrants higher unit costs only in the initial phases of entry. The D.C. Circuit held, again citing the views of the dissenting Justice in this Court, that unbundling necessarily creates "disincentives to invest in innovation" and imposes other costs, and it held that to minimize these disincentives, unbundling decisions cannot be based on cost disparities that are "universal as between incumbents and new entrants in *any* industry" and that are not "linked (in some degree) to natural monopoly characteristics." Pet. App. 18a-22a.

Finally, the D.C. Circuit held that the FCC's decision in the separate *Line Sharing Order* to require the unbundling of the high frequency portion of the loop suffered from an additional defect. The panel held that it was "unreasonable" for the FCC to order unbundling by "merely adhering to the letter of the statute" and finding that competitors would be prevented from providing the service that they seek to offer if access to the high frequency portion of the local loop were denied. Pet. App. 24a. It held that the Court must also consider whether "competition" was impaired, since the "Commission [has no license] to inflict on the economy the sort of costs noted by Justice Breyer under conditions where it had no reason to think doing so would bring significant enhancement of competition." Pet. App. 25a. It therefore remanded the case to the Commission to consider whether the existence of cable, satellite and other services providing high-speed Internet access services made line sharing unnecessary. Pet. App. 25a.

The FCC, along with petitioners and other competitors, unsuccessfully sought rehearing and rehearing *en banc* of the

court's decision, on the ground that it was inconsistent with this Court's decisions in *IUB* and *Verizon*.[1]

F. Triennial Review

While the case below was pending in the D.C. Circuit, the FCC initiated its previously planned review of its unbundling policies, dubbed the "*Triennial Review*" because the FCC intends to undertake the process every three years. *See In re Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, 16 F.C.C.R. 22781 (2001). Before the D.C. Circuit issued its decision, the FCC stated that it would essentially be reconsidering its rules *de novo* in light of "the pro-competitive, market-opening provisions of the 1996 Act . . ., advances in technology, and other developments in the markets for telecommunications services." *Id.* ¶ 1. After the decision below was issued, the FCC announced that it would consider the impact of the D.C. Circuit's decision in its *Triennial Review* proceeding. *See* Statement of FCC Chairman Michael Powell on the Decision by the Court of Appeals of the District of Columbia regarding the Commission's Unbundling Rules, 2002 WL 1050058 (FCC May 24, 2002).

The parties to the *Triennial Review* proceeding have presented radically divergent views of the decision below. Virtually all competitors, as well as state utility commissions, have contended that, although the D.C. Circuit decision imposes additional evidentiary and explanatory burdens, these should be read narrowly and present no impediment to the

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1/ In an order dated September 4, 2002, at the same time it denied rehearing, the D.C. Circuit stayed its mandate to the extent it had ordered vacation of the *Line Sharing Orders* until January 2, 2003. Pet. App. 298a-299a. The court's initial decision had remanded, but not vacated, the *UNE Remand Order*. Pet. App. 22a, 26a.

continuation of the existing national list of network elements and to the elimination of restrictions that have been shown to impair the provision of competing local services. By contrast, the incumbents have contended that the decision requires the FCC to remove elements from the national list, to impose restrictions on others, and to preempt state commissions from independently adopting more expansive unbundling requirements.

REASONS FOR GRANTING THE PETITION

Six and a half years after Congress passed the 1996 Act, a circuit court has once again struck down critical regulations designed to introduce competition in the nation's local telephone markets "as quickly as possible." H. Rep. at 89. The 1996 Act "was an unusually important legislative enactment," *Reno v. ACLU*, 117 S. Ct. 2329, 2337 (1997), that "profoundly affects a crucial segment of the economy worth tens of billions of dollars," *IUB*, 525 U.S. at 397. It sets comprehensive national policy for one of the most significant and dynamic sectors of the nation's economy and was intended to benefit every American home and business.

Congress "intended to eliminate the monopolies enjoyed by the inheritors of AT&T's local franchises" by requiring the FCC to take affirmative steps to eliminate existing legal and economic barriers to entry, *Verizon*, 122 S. Ct. at 1654, and to "'jump-start'" competition "by rendering regulated utilities' monopolies vulnerable to" new entrants. *Id.* at 1661 (quoting 141 Cong. Rec. 15572 (1995) (Remarks of Sen. Breaux on Pub. L. 104-104 (1995))). The principal regulatory mechanism that Congress adopted to achieve this purpose was to allow "new entrants . . . to lease elements of the local telephone network from the incumbent monopolists" at cost-based rates. *Id.* at 1654. Congress had concluded that only through such affirmative regulation would monopoly markets be pried open

so that consumers would have the benefit of competitive choices in telecommunications services.

The incumbents have repeatedly challenged the FCC's and state commission's implementation of the Act in an effort to protect their telephone monopolies. In recognition of the importance of these issues, this Court has already twice chosen to review and reverse lower court decisions that struck down the regulations that implement this core unbundling requirement. Yet the D.C. Circuit has here remanded FCC orders that fully comply with this Court's prior holdings by invoking views that were expressed in the dissenting opinion and that were rejected by the seven-member majority of this Court.

Review of this decision is urgently needed. It conflicts not just with the prior decisions of this Court, but also with decisions of the other courts of appeals that must apply the Act in their review of state commission decisions approving the interconnection agreements that actually govern relations between incumbents and would-be competitors. If review of the D.C. Circuit's decision is denied, the industry will face more years of crippling regulatory uncertainty, as the FCC and lower courts struggle to apply both this Court's decisions and the decision below. Finally, as will be explained, the Commission's pending review of its unbundling regulations makes the need for review even more pressing.

Although years of litigation have slowed the development of competition in the nation's local telephone markets, progress is being made.[2] The Commission's unbundling rules finally are

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2/ In 2001, the last year for which official data from the FCC is available, the number of competitor-operated local phone lines increased by 30% under the Commission's unbundling rules to approximately 20 million lines (compared to the incumbents' 173 million). *See* Local Telephone

working to introduce competition as Congress intended. Review is urgently needed to preserve and expand this nascent competition.

A. The D.C. Circuit's Decision Conflicts With the Decisions of This Court Interpreting the 1996 Act.

1. The 1996 Act requires that when the FCC determines which network elements to unbundle, it must consider, "at a minimum," whether the failure to provide access to facilities "would impair the ability of the telecommunications carrier seeking access to provide the services it seeks to offer." 47 U.S.C. §§ 251(d)(2), (d)(2)(B). The Commission has construed this impairment requirement in a manner that is fully consistent with this Court's remand order in *IUB* and with the plain meaning of the statutory text. The FCC indisputably relied only on those impairments that adversely affect competitors' ability to provide service, and indisputably considered whether a competitor could obtain the needed facility from some source other than the incumbent. *See IUB*, 525 U.S. at 389-92; 47 C.F.R. § 51.317. As to the text's plain meaning, as the D.C. Circuit itself recognized, Congress "charged the Commission with identifying those network elements whose lack would 'impair' would-be competitors' ability to enter the market, yet gave no detail as to either the kind or degree of impairment that would qualify." Pet. App. 10a. Without additional guidance from the Congress, the FCC has interpreted the term "impair" consistently with that term's natural meaning. *See, e.g.,*

Competition: Status as of December 31, 2001, Industry Analysis and Technology Division, Wireline Competition Bureau, at Table 1 (July 2002) (Pet. App. 320a). And approximately 6.5 million of those lines — roughly 30% — are built and owned by new entrants. *Id.* at Tables 1, 4 (Pet. App. 320a-321a). That represents a concomitant 30% increase in facilities-based competition in 2001, on top of the $55 billion that new entrants had invested in facilities through the end of 2000, *see Verizon*, 122 S. Ct. at 1675.

Humana Inc. v. Forsyth, 525 U.S. 299, 309-10 (1999) ("The dictionary definition of 'impair' is '[t]o weaken, to make worse, to lessen in power, diminish, or relax, or otherwise affect in an injurious manner.'") (quoting *Black's Law Dictionary* at 752 (6th ed.1990)); *UNE Remand Order* ¶ 52 n.92 (adopting dictionary definition) (Pet. App. 74a).

2. The D.C. Circuit nevertheless imposed extra-statutory evidentiary and explanatory burdens on the FCC, all of which proceeded in some fashion from its policy judgment that unbundling has adverse effects on investment and innovation, a policy judgment this Court has squarely rejected.

In particular, the decision below rests on the assumption that the competition by new entrants whose networks are initially comprised of the incumbents' leased facilities has little value and should be discouraged. Pet. App. 14a (describing such competition as "completely synthetic"). This Court rejected this precise argument, *see, e.g.*, *Verizon*, 122 S. Ct. at 1669 (rejecting argument that competition through cost-based leasing of unbundled network elements is "not competition, but a sort of parasitic free-riding"). The Court understood that Congress intended to "give aspiring competitors every possible incentive to enter the local retail telephone markets, short of confiscating the incumbents' property." *Verizon*, 122 S.Ct. at 1689-90. Congress concluded that such aggressive steps were necessary because without them the incumbent "would have an almost insurmountable competitive advantage." *Id.* at 1662.

Additionally, the D.C. Circuit held that this so-called "synthetic" competition necessarily created incentives that would deter purportedly more valuable "facilities-based" competition, and the D.C. Circuit did not even address the FCC's findings that rejected this contention as a matter of economic theory, *see, e.g.*, *UNE Remand Order* ¶ 112 (Pet. App. 117a-118a). The D.C. Circuit further rejected the

Commission's reliance on evidence of the growth of facilities-based competition while the FCC's leasing regime was in place, for the Commission had not shown, through "multiple regression analyses" or otherwise, that even more "true" competition would not have emerged in the absence of the leasing rules. Pet. App. 16a-17a.

These holdings are flatly contrary to this Court's discussion in *Verizon*. *Verizon* credited the FCC's findings that the desire of competitors to end their dependence on incumbents and other factors would, as a matter of economic theory, assure that rights to lease elements at their long-run incremental costs would not prevent the development of facilities-based alternatives. 122 S. Ct. at 1669-73.

Verizon further held that the incumbents' claim "founders on fact," *id.* at 1675, because the existence of substantial facilities investment foreclosed any claim that the FCC's rules were an unreasonable way to promote such investment. *Verizon* expressly rejected the claim that the D.C. Circuit embraced: that the existing level of investment "tells us little or nothing" of "how such investment compares with what would have occurred in the absence of the prospect of unbundling." Pet. App. 16a. To the contrary, this Court found this evidence dispositive, and held that the FCC was not required to show more to reject the incumbents' claim:

> We, of course, have no idea whether a different . . . scheme would have generated even greater competitive investment than the $55 billion that the entrants claim, but it suffices to say that a regulatory scheme that can boast such substantial competitive capital spending over a 4-year period is not easily described as an unreasonable way to promote competitive investment in facilities.

Id. at 1675-76.

Finally, the D.C. Circuit concluded that the FCC's rules also had deterred the *incumbents'* investment in new and innovative facilities. The panel relied on its belief that the Commission's pricing rules require a "regulated price below true cost" and will thus "reduce or eliminate the incentive for an [incumbent] to invest in innovation. . . ." Pet. App. 15a.

But *Verizon* squarely rejected the D.C. Circuit's assumption that the FCC's pricing methodology produces rates that are "below true cost." Indeed, this Court not only held that those rules provide a reasonable and appropriate method of computing true cost, but also stated that "any cost difference" between the "historic cost[s]" to which the D.C. Circuit referred (Pet. App. 11a) and the costs identified by the FCC "is an inefficiency." *Verizon*, 122 S. Ct. at 1673.

Similarly, this Court recognized that it was "commonsense" that "incumbents will continue to have incentives to invest and to improve their services to hold on to their existing customer base" in response to competition facilitated by unbundling. *Id.* at 1676 n.33. It thus dismissed as pointless "speculation," *id.* at 1675-76, the precise argument used by the D.C. Circuit to conclude that "promiscuous" leasing had deterred the incumbents' investment.

Notwithstanding this Court's clear rejection of these policy views, the D.C. Circuit quite candidly stated that its specific holdings all rested on its view that the FCC's understanding of unbundling would "license . . . the Commission to inflict on the economy the sort of costs noted by Justice Breyer," Pet. App. 25a. But while these views indeed plainly derive from the *Verizon* dissent's interpretation of the Act, *see Verizon*, 122 S. Ct. at 1689-1700 (Breyer, J., dissenting in relevant part), they just as plainly were rejected by the majority of this Court.

Ultimately, this Court's rejection of these policy arguments rests on its conclusion that such judgments are properly the province of the FCC, and not of the reviewing courts. Following *Chevron*, the Court rejected arguments based on the D.C. Circuit's and Justice Breyer's policy views because the "job of judges is to ask whether the Commission made choices reasonably within the pale of statutory possibility in deciding what and how items must be leased" under the Act. *Verizon*, 122 S. Ct. at 1687. Such economic policy-laden views are "the stuff of debate for economists and regulators versed in the technology of telecommunications," not "judges." *Id.* As this Court said in rejecting arguments about the disincentives allegedly created by the FCC's leasing regime, regulatory authorities have clear discretion to adopt rules that would maximize the numbers of potential competitors and allow entry by hundreds of firms: "Is it better to risk keeping more potential entrants out, or to induce them to compete in less capital-intensive facilities with lessened incentives to build their own bottleneck facilities? It was not obviously unreasonable for the FCC to prefer the latter." *Id.* at 1672.

3. *Verizon* did not merely reject the economic policy premises of the D.C. Circuit. Each of the D.C. Circuit's specific subsidiary holdings was rejected by *Verizon* and, in some instances, by *IUB* as well.

First, the D.C. Circuit concluded that the FCC's nationwide findings of impairment were inadequate because the FCC did not consider the "market-specific variations in competitive impairment" that allegedly result from the "cross-subsidization often ordered by state regulatory commissions" to foster universal service. Pet. App. 10a. The court stated that the existence of these subsidies can distort competition in any rural and/or residential markets where states have kept retail rates artificially low, for new entrants would be impaired even

with cost-based access to the incumbents' network elements. Conversely, in any markets where states have kept retail rates artificially high, the D.C. Circuit believed that new entrants may not need cost-based access to the incumbents' network elements in order to compete. Pet. App. 11a-12a.

However, this Court's decision in *IUB* squarely holds that the FCC properly ignored the distorting effects of any implicit universal service subsidies in making unbundling decisions because the Act called for the elimination of those subsidies. There the incumbents had challenged the FCC's unbundling regulations on the ground that they permitted new entrants to obtain network elements at cost-based rates and that this gave new entrants unfair "arbitrage" advantages in competing for the customers served at above-cost rates and could undermine the system of subsidies. *IUB*, 525 U.S. at 393-94. This Court rejected that claim on the ground that "§ 254 [of the Act] requires that universal-service subsidies be phased out," and that the conditions to which incumbents referred are "temporary" and irrelevant to unbundling determinations. *Id.* Indeed, as the FCC has elsewhere concluded, competition through unbundled elements promotes the Act's universal service policies because it makes existing subsidies unsustainable and accelerates their elimination. *In re Access Charge Reform*, 12 F.C.C.R. 15982, ¶ 262 (1997). Accordingly, the *UNE Remand Order* concluded that because competition will eliminate the profit margins that can be earned under existing retail rates, its unbundling determinations would ignore those rates and any subsidies built into them. *UNE Remand Order* ¶ 73 (Pet App. 90a-91a). The D.C. Circuit's contrary ruling simply ignored these policy determinations and their endorsement by this Court.

Second, the D.C. Circuit held that findings of impairment cannot rest solely on conclusions about economies of scale that

give new entrants higher unit costs in the initial phases of market entry, but must instead be based on scale economies that are "linked (in some degree) to natural monopoly characteristics." Pet. App. 21a. Although the Commission did not, in fact, find impairment based solely on economies of scale, the D.C. Circuit's holding cannot be squared with this Court's prior decisions.

Cost disparities facing new entrants created by the incumbents' economies of scale establish "impairment" within the plain meaning of that term even if they exist only until the competitors build up a substantial customer base, and elimination of disparities felt at the early stage of entry promotes the statutory object of "'jump-start[ing]'" local competition. *Verizon*, 122 S. Ct. at 1661 (citation omitted). And this Court expressly rejected the claim (advanced by the dissent) that "impairment" had to be based on the same economic factors that are in play in the "essential facilities" doctrine. *Compare* Pet. App. 18a-19a *with IUB*, 525 U.S. at 388. The D.C. Circuit's holding is also plainly inconsistent with this Court's statement in *Verizon* that unbundling is justified if there is any "cost disparity" that makes an element "expensive" and "costly to duplicate" by any of "hundreds of smaller entrants," regardless of whether the disparity is common to other industries or whether it would preclude all competitors from duplicating the element. 122 S. Ct. at 1672 n.27.

Third, the panel decision remanded the FCC's separate *Line Sharing Order* requiring further unbundling of the high-frequency portion of the line that connects the customer to the incumbents' local office. Line sharing had been one of the Act's successes. Competitors use line sharing to provide to consumers high-speed DSL Internet access services, and their competitive presence (along with competition from the cable

companies) has forced the incumbent monopolists to offer competing DSL services, which they had previously been unwilling to do because those services also compete with the much higher priced high-speed business services that incumbents already provide. Now that competition has been put at risk by the decision below.

In remanding, the panel did not dispute that in requiring line sharing the FCC had considered whether the incumbents' "failure to provide access to [line-shared loops] would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer." 47 U.S.C. § 251(d)(2)(B). But it held that the FCC erred in not considering additional extra-statutory factors in assessing whether to require line sharing. Relying again on the views set forth in the dissent in *Verizon*, the panel concluded that it was "unreasonable" for the Commission to "adher[e] to the letter of the statute" and focus exclusively on the impairment to competitive carriers without also considering whether in general "competition was impaired" without line sharing, since the "Commission [has no license] to inflict on the economy the sort of costs noted by Justice Breyer under conditions where it had no reason to think doing so would bring significant enhancement of competition." Pet. App. 25a. It therefore remanded the case to the Commission to consider whether the existence of cable, satellite and other services providing high-speed Internet access services made line sharing unnecessary, even though the FCC had found that hundreds of competitors seeking to offer telephony-based Internet access services would be impaired without line sharing. Pet. App. 25a-26a.

But this Court has held that unbundling is not be to defeated for "hundreds of smaller" firms merely because "large competitive carrier[s]" with "resources" can duplicate an element. *Verizon*, 122 S. Ct. at 1672 n.27. Thus, it is irrelevant

to an unbundling determination that there are cable TV systems with unique nonduplicable assets that offer limited competition to the incumbents' Internet access services without using their facilities.

Nonetheless, in the *Triennial Review* proceeding incumbents have argued that the D.C. Circuit's decision prohibits the FCC from reinstating line sharing obligations. Such a result would have devastating effects on competition in the DSL market, an emerging market where new entrants are otherwise well-positioned to compete. As the FCC recognized, line sharing is the only way to "ensure that residential and small business customers receive the benefits of competition and innovation promised in the Act." *Line Sharing Order* ¶ 13 (Pet. App. 249a). Specifically, the FCC found that without line sharing incumbents "gained a more than 17-1 advantage in deploying [DSL] services to residential and small business subscribers," and that competitors "are at a significant disadvantage in offering [DSL] services over the same line that is used to provide voice service" because of the much smaller market share they have in voice services. *Id.* ¶¶ 32, 33 (Pet. App. 263a-265a). Where the incumbent has deployed only one loop to a residence or small business, and the incumbent is providing voice services over that loop, a new entrant cannot offer voice-compatible DSL service without access to the high-frequency portion of that loop; there is simply no alternative. Even where there are multiple lines to a house, no consumer would choose to pay extra for services over two lines (one for voice from the incumbent, using only the low-frequency portion of the loop, and one for data from a competitor, using only the high-frequency portion) when the incumbent can more efficiently provide the same two services using only one facility. Accordingly, line sharing has a "dramatic impact" on competition in the market for DSL services. *Id.* ¶ 35 n.67 (Pet. App. 266a).

In each of these ways, the decision below conflicts with this Court's prior ruling construing the Act's leasing provisions, and adopts a perverse construction of those provisions based on the lower court's own policy preferences.

B. The D.C. Circuit's Decision Conflicts With a Decision of the Fourth Circuit.

The D.C. Circuit's decision also is in direct conflict with the decision of the United States Court of Appeals for the Fourth Circuit in *AT&T Communications of Virginia, Inc. v. Bell Atlantic-Virginia, Inc.*, 197 F.3d 663 (4th Cir 1999). There, the Fourth Circuit was called upon to interpret and apply this Court's decision in *IUB* before the FCC had issued new unbundling rules in the *UNE Remand Order*. In light of the Court's analysis in *IUB*, the Fourth Circuit concluded that "[w]hen denying access to an unbundled network element has more than a de minimis effect, . . . the Act requires that access be provided." *AT&T Communications of Virginia*, 197 F.3d at 673. In stark contrast, the D.C. Circuit interpreted the Act and this Court's decision in *IUB* to impose far more restrictive limitations on the availability of network elements for leasing under §§ 251(c)(3) and 251(d)(1).

C. The Resolution of the Issues In This Case is a Matter of Great National Importance.

Finally, the grant of this petition is a matter of great national importance. Unless this plainly erroneous decision is reviewed and reversed, it will needlessly complicate the ongoing efforts of the FCC and state utility commissions to implement a landmark federal statute. In particular, the decision creates uncertainty that can thwart local competition in connection not just with present or future FCC proceedings, but also with the state utility commission proceedings in which interconnection agreements are established and revised, and

with the federal district court proceedings that review the state commission determinations in each state in the nation. *See* 47 U.S.C. § 252(e)(6). And to the extent that the D.C. Circuit decision leads to the imposition of restrictions on the availability of network elements that otherwise would not be ordered, it will cripple the local competition that is the object of the landmark Telecommunications Act of 1996.

The pendency of the FCC's *Triennial Review* of its network element rules provides a further reason to grant the instant petition.

First, this Court's decision would provide much-needed guidance to the FCC if its *Triennial Review* decision is not issued until after this Court rules. Before the D.C. Circuit issued its decision, the FCC Chairman had stated that it intended to conclude the *Triennial Review* before January 1, 2003. However, it now appears clear that the FCC will not be able to conclude the proceeding by that date. Moreover, if review is granted by this Court, it is also entirely possible that a majority of the FCC may choose to await a decision by this Court before finalizing its *Triennial Review* decision. Under such a scenario, review will be essential to the orderly and effective implementation of the 1996 Act.

Second, if the FCC were to issue a decision in the *Triennial Review* while this case is pending in this Court, the Court can deal with the significance of that decision at that time.

On the one hand, the FCC could issue a decision in the *Triennial Review* that retains its existing national list of network elements and eliminates restrictions on their availability — which is the position that petitioners, other competitive carriers, and the vast majority of state commissions have urged. If such a decision were to issue, it would not

foreclose the Court from proceeding with its review of the D.C. Circuit's decision in this case; the Court has proceeded with review of agency orders in comparable circumstances in the past. *See, e.g., Maislin Industries, U.S., Inc. v. Primary Steel,* 497 U.S. 116, 121-22 (1990) (reviewing ICC's *Negotiated Rates I* rules in light of subsequent revisions and clarification of them in its *Negotiated Rates II* order). However, the Court might nonetheless conclude that petitioners' interests would be adequately protected by permitting the FCC's *Triennial Review* decision to be reviewed in a court of appeals and addressing the D.C. Circuit's decision in this case only if a court of appeals applied it to invalidate the FCC's new *Triennial Review* order. In that event, the petition for *certiorari* could be dismissed after it had been granted.

On the other hand, very different considerations would be presented if the FCC were to issue a *Triennial Review* decision that accepted the positions urged by the incumbents and held that the D.C. Circuit's decision required removing certain network elements from the existing national list or imposing restrictions that prevent competitive carriers from broadly offering service through unbundled network elements. In that circumstance, if this Court had not granted *certiorari* in this case, it could have a devastating effect on local competition that could not be repaired by a future decision of this Court.

Specifically, if *certiorari* is not granted, it could prove impossible for petitioners to obtain a stay or other interim relief against a restrictive *Triennial Review* order. In states where the state commissions had not themselves imposed broad unbundling requirements, services will be discontinued. It would take a minimum of two years before the *Triennial Review* order could be reviewed in the court of appeals and before this Court could review the question whether the D.C. Circuit decision that had led to the radical restrictions on

unbundling itself violates the Act. In the interim, competition would be devastated, perhaps irreparably.

A grant of *certiorari* and reversal of the D.C. Circuit's decision would also prevent litigation and uncertainty in the many states where state commissions have, pursuant to their authority under §§ 251(d)(3), 252(c)(1), and 252(e)(3) of the Act, independently imposed the same or greater unbundling requirements as were adopted in the two FCC orders at issue. The incumbents have asserted that the D.C. Circuit's decision below means that a future FCC order that adopts a narrower list of network elements will automatically preempt the rules and orders of these state commissions, and have threatened to institute litigation against each state commission in a federal district court in that state under § 252(e)(6) of the Act. While those claims should fail for other reasons, a decision from this Court that reviews and reverses the D.C. Circuit's decision would eliminate the premise for the incumbents' claims and prevent literally scores of lawsuits and the debilitating uncertainty that each creates.

In sum, the FCC is poised to establish new unbundling rules that will attempt to be faithful both to this Court's rulings and the inconsistent ruling of the D.C. Circuit, and state commissions are exercising their independent authority to implement not only their understandings of the requirements of § 251, but also those of state law that do not substantially impede implementation of the Act's requirements and purposes. Given the contradictory mandates of the courts, the rules that result, whatever they are, inevitably will generate further litigation and more regulatory uncertainty. Reviewing courts will face the same problem the FCC already is facing in the *Triennial Review*: how to reconcile and apply both the *USTA* decision and this Court's contrary holdings in *IUB* and *Verizon*. The prospect of years of such uncertainty while those rules in

turn wind their way through the courts risks killing off what competition has been able to take hold to date. The only way to avoid this result is for the Court to address this conflict now, as it is squarely presented here.

For these reasons, the conflict between *USTA* and the decisions of this Court should be resolved promptly.

CONCLUSION

The Petition for a Writ of Certiorari should be granted.

Respectfully submitted,

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December 3, 2002

APPENDICES

Appendix A

United States Court of Appeals,
District of Columbia Circuit.

UNITED STATES TELECOM ASSOCIATION, et al.,
Petitioners,
v.
FEDERAL COMMUNICATIONS COMMISSION and
United States of America, Respondents.
Bell Atlantic Telephone Companies, et al., Intervenors.
United States Telecom Association, et al., Petitioners,
v.
Federal Communications Commission and United States of
America, Respondents.
AT&T Corporation, et al., Intervenors.

Nos. 00-1012, 00-1015, 00-1025, 01-1075, 01-1102 and
01- 1103.

Argued March 7, 2002.
Decided May 24, 2002.
Rehearing and Rehearing En Banc Denied Sept. 4, 2002.[1]

On Petitions for Review of Orders of the Federal Communications Commission.

Before: EDWARDS and RANDOLPH, Circuit Judges, and WILLIAMS, Senior Circuit Judge.

Opinion for the Court filed by Senior Circuit Judge WILLIAMS.

WILLIAMS, Senior Circuit Judge:

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[1]Circuit Judge Henderson did not participate in this matter.

Petitioners in these two cases--certain incumbent local exchange carriers ("ILECs") and the U.S. Telecom Association, representing approximately 1200 such carriers--seek review of two rulemaking orders of the Federal Communications Commission. One order requires ILECs to lease a variety of "unbundled network elements" ("UNEs") to competitive local exchange carriers ("CLECs"), and the other unbundles a portion of the spectrum of local copper loops so that CLECs can offer competitive Digital Subscriber Line ("DSL") internet access. We grant both petitions, and remand both rules to the Commission.

I. Background

Congress passed the Telecommunications Act of 1996, Pub.L. 104-104, 110 Stat. 56, codified at 47 U.S.C. § 151 et seq. (the "1996 Act" or the "Act"), to "promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies." 1996 Act, preamble. In pursuit of that goal, § 251 of the Act requires that ILECs "unbundle" their network elements--that is, provide them on an individual basis to competitive providers on terms prescribed by the Commission. 47 U.S.C. § 251(c)(3). To guide the Commission in deciding which network elements are to be unbundled, the Act goes on to specify:

> (2)Access standards
>
> In determining what network elements should be made available for purposes of subsection (c)(3) of this section, the Commission shall consider, at a minimum, whether –
>
> (A) access to such network elements as are proprietary in nature is necessary; and

> (B) the failure to provide access to such network elements would *impair* the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer. 47 U.S.C. § 251(d)(2) (emphasis added).

In its first effort at implementation, *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996,* First Report and Order, CC Docket No. 96-98, 11 FCC Rcd 15499 (1996) ("First Local Competition Order"), the Commission gave this section the following reading:

> The term "impair" means "to make or cause to become worse; diminish in value." We believe, generally, that an entrant's ability to offer a telecommunications service is "diminished in value" if the quality of the service the entrant can offer, absent access to the requested element, declines and/or the cost of providing the service rises. We believe we must consider this standard by evaluating whether a carrier could offer a service *using other unbundled elements within an incumbent LEC's network.*

Id. at 15643, ¶ 285 (emphasis added). In *AT&T Corp. v. Iowa Utilities Board,* 525 U.S. 366, 119 S. Ct. 721, 142 L.Ed.2d 835 (1999), the Supreme Court found the Commission's view far too broad, saying that under such a standard it was "hard to imagine when the incumbent's failure to give access to the element would not constitute an 'impairment.'" *Id.* at 389, 119 S. Ct. at 735. It specifically criticized the Commission's having "blind[ed] itself to the availability of elements outside the incumbent's network," including self- provisioning and leasing from other providers. *Id.* It criticized the Commission's view that "*any* increase" in the competitor's cost (resulting from lack of access to an incumbent's element) would be an "impairment." *Id.* at 389-90, 119 S. Ct. at 735-36 (emphasis in original). Summarizing the overall picture, it said that if "Congress had wanted to give

blanket access to incumbents' networks," it "would simply have said (as the Commission in effect has) that whatever requested element can be provided must be provided." *Id.* at 390, 119 S. Ct. at 735.

In *Iowa Utilities Board,* the Supreme Court also addressed the Act's provisions on rates for UNEs, reversing the Eighth Circuit's holding that the Commission had no authority to set such rates. *Id.* at 377-86, 119 S. Ct. at 729-34. It accordingly returned the remaining rate issues to the Eighth Circuit, which on remand invalidated the Commission's rate-setting principle, known by the acronym TELRIC (for "total element long-run incremental cost"). See *Iowa Utilities Board v. FCC,* 219 F.3d 744 (8th Cir.2000). The Supreme Court reversed, upholding the TELRIC principle. *Verizon Communications, Inc. v. FCC,* 535 U.S. ----, 122 S. Ct. 1646, 152 L.Ed.2d 701 (2002).

Following the Supreme Court's remand on the "impairment" standard, the Commission again tackled that issue in the rulemakings now on review. In what we will call the "Local Competition Order," *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996,* Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 15 FCC Rcd 3696 (1999), it revised its definition of "impair" so as to require unbundling if, "taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, *lack of access* to that element *materially diminishes* a requesting carrier's ability to provide the services it seeks to offer." Local Competition Order, 15 FCC Rcd at 3725, ¶ 51 (emphasis added); 47 C.F.R. § 51.317(b)(1). In weighing the availability of alternative network elements, the Commission noted that it would examine five factors--cost, effect on timeliness of entry, quality, ubiquity, and impact on

network operations. Local Competition Order, 15 FCC Rcd at 3731, ¶ 65, 3734-45, ¶ ¶ 71-100; 47 C.F.R. § 51.317(b)(2). Finally, it said that beyond looking simply to "impairment," it would consider five factors that it believed would further the Act's goals, namely whether unbundling would lead to "rapid introduction of competition in all markets," promote "facilities-based competition, investment, and innovation," reduce regulatory obligations, promote certainty in the market, and be administratively practical. 15 FCC Rcd at 3745-50, ¶ ¶ 101- 16; 47 C.F.R. § 51.317(b)(3).

Of particular importance to this case, the Commission decided to make its unbundling requirements (except for two elements) applicable uniformly to all elements in every geographic or customer market. We return in detail to this issue after a survey of the elements unbundled by the Local Competition Order:

. Local loops, defined as "all features, functions and capabilities of the transmission facilities, including dark fiber and attached electronics (except those used for the provision of advanced services, such as DSLAMs [DSL Access Multiplexers]) owned by the incumbent LEC, between an incumbent LEC's central office and the loop demarcation point at the customer premises." 15 FCC Rcd at 3772, ¶ 167; 47 C.F.R. § 51.319(a)(1). The Commission also required that incumbent LECs "condition" loops so as to allow CLECs to offer advanced services. 15 FCC Rcd at 3775, ¶ 172; 47 C.F.R. § 51.319(a)(3). Conditioning, for these purposes, means removing devices such as bridge taps, low-pass filters, range extenders, etc., that improve voice transmission but may decrease a loop's advanced services capabilities. *Id.*

. Subloops, i.e., those "portions of the loop that can be accessed at terminals in the incumbent's outside plant." 15

FCC Rcd at 3789, ¶ 206; 47 C.F.R. § 51.319(a)(2). Points of access might include the pole near the customer's premises, the network interface device ("NID"), and the feeder distribution interface (where the trunk line from the central office interfaces with the distribution line to the subscribers). 15 FCC Rcd at 3789-90, ¶ 206.

. Network Interface Devices, which include all "features, functions, and capabilities of the facilities used to connect the loop distribution plant to the customer premises wiring, regardless of the particular design of the NID mechanism." *Id.* at 3801, ¶ 233; 47 C.F.R. § 51.319(b). This broad definition is intended to make the unbundling requirement "flexible and technology-neutral," so as to apply to any new NID technologies that may develop. 15 FCC Rcd at 3801, ¶ 234.

. Circuit switching, defined as the "basic function of connecting lines and trunks," including "all the features, functions and capabilities of the switch." *Id.* at 3805, ¶ 244; 47 C.F.R. § 51.319(c). The Commission made one narrow exception to circuit switch unbundling, which we discuss below.

. Packet switching under some circumstances. Packet switches perform "the function of routing individual data units based on address or other routing information contained in the units." 15 FCC Rcd at 3833, ¶ 302; 47 C.F.R. § 51.319(c)(4). The Commission for the most part denied unbundling for packet switching, requiring it only where the ILEC has used digital loop carrier systems, placing a DSLAM at a remote terminal and refusing to allow the competitor to collocate its own DSLAM at that remote terminal. 15 FCC Rcd at 3838, ¶ 313. That is, if the loop is such that a remote DSLAM is necessary to provide DSL service at all, and the ILEC has denied the

CLEC the right to collocate a DSLAM remotely, then unbundling the packet switching (i.e., the ILEC's own DSLAM) would be the only way to allow the CLEC to provide DSL service.

- Dedicated transport, defined as "facilities dedicated to a particular customer or carrier that provide telecommunications between wire centers owned by incumbent LECs or requesting telecommunications carriers, or between switches owned by incumbent LECs or requesting telecommunications carriers." *Id.* at 3842, ¶ 322; 47 C.F.R. § 51.319(d)(1)(i). The Commission expanded this traditional definition so as to include all high-capacity transmission facilities of specified types and "such higher capacities as evolve over time," 15 FCC Rcd at 3843, ¶ 323, as well as dark fiber, *id.* at 3843-46, ¶ ¶ 325-30; 47 C.F.R. § 51.319(d)(1)(ii).

- Shared transport, defined as "transmission facilities shared by more than one carrier, including the incumbent LEC, between end office switches, between end office switches and tandem switches, and between tandem switches in the incumbent LEC's network." 15 FCC Rcd at 3862, ¶ 370; 47 C.F.R. § 51.319(d)(1)(iii).

- Signaling networks and call-related databases. Signaling networks include signaling transfer points, to which each local switch must be connected. 15 FCC Rcd at 3868, ¶ 384; 47 C.F.R. § 51.319(e). Call-related databases are "used in signaling networks for billing and collection or the transmission, routing, or other provision of telecommunications service." 15 FCC Rcd at 3875, ¶ 403. The databases specifically unbundled include the calling name database, the 911 database, the toll free calling database, and several others. *Id.*

. Operations support systems. These are the "functions supported by an incumbent LEC's databases and information," including "pre-ordering, ordering, provisioning, repair and maintenance, and billing." 15 FCC Rcd at 3884, ¶ 425; 47 C.F.R. § 51.319(g).

So far as we understand, this list is narrower than that which the Court reversed in *Iowa Utilities Board* only in its exclusion of some circuit switches, as well as of operator services and directory assistance. See 15 FCC Rcd at 3822-31, ¶ ¶ 276-98, 3890-92, ¶ ¶ 438-42. In other areas, the Commission's list has actually been expanded, now including high- capacity loops, *id.* at 3777, ¶ 176, 3780, ¶ 184, dark fiber, *id.* at 3785, ¶ 196, 3843-46, ¶ ¶ 325-30, subloops, *id.* at 3788-89, ¶ ¶ 202-05, and packet switches in a few circumstances, *id.* at 3832-35, ¶ ¶ 300-06.

In what we call the "Line Sharing Order," *In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability and Implementation of the Local Competition Provisions of the Telecommunications Act of 1996,* Third Report and Order in CC Docket No. 98-147 and Fourth Report and Order in CC Docket No. 96-98, 14 FCC Rcd 20912 (1999), the Commission refined unbundling further. Copper loops have a range of spectrum in which the transmission of information is possible. Analog telephone service uses only the lower frequencies of that spectrum (typically 300 to 3400 hz), leaving higher frequencies unused. Recent technological development allows the provision of DSL high-speed internet access over the high-frequency (i.e., 20,000+ hz) spectrum.[2] By fitting the loop with splitters

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[2]There are numerous types of DSL technology: ADSL (asymmetric DSL, in which upstream transmissions are much slower than downstream), HDSL (high-speed DSL), UDSL (universal DSL), VDSL (very-high-speed

(which split apart voice and digital signals) and DSLAMs (Digital Subscriber Line Access Multiplexers) (which send voice traffic to the circuit-switched telephone network and data traffic to the packet-switched data network), local carriers can provide both plain old telephone service and DSL internet access at the same time.

In the "Line Sharing Order" the Commission decided that the high frequency portion of copper loop spectrum should be unbundled as to those loops on which ILECs are currently providing telephone service. The Commission defined the "high frequency" portion as simply any frequency "above the voiceband on a copper loop facility used to carry analog circuit-switched voiceband transmissions." Line Sharing Order, 14 FCC Rcd at 20926, ¶ 26; 47 C.F.R. § 51.319(h)(1).

Such unbundling means, of course, that CLECs and ILECs would share the same copper loop to provide two different services at once. See, e.g., 14 FCC Rcd at 20923, ¶ 17. The Commission clarified that the unbundling obligation extends to only one competitor per line. *Id.* at 20948, ¶ 47.

The Commission also required ILECs to condition loops, that is, to remove loading coils, bridge taps, and other voiceband transmission enhancing equipment that tends to interfere with DSL service. *Id.* at 20917; 20952- 54, ¶ ¶ 81-87; 47 C.F.R. § 51.319(h)(5). An ILEC can escape this obligation by demonstrating that conditioning would significantly degrade analog voice service. The Commission explicitly recognized that such a showing would be practically

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DSL), and RADSL (rate-adaptive DSL). See Line Sharing Order, 14 FCC Rcd at 20915 n.5. The Commission here and elsewhere refers to these technologies collectively as "xDSL," the "x" serving as a generic identifier. In the interests of judicial economy, we shall simply use "DSL" as the generic term.

impossible for loops under 18,000 feet. 14 FCC Rcd at 20954, ¶ 86.

II. The Local Competition Order

We note at the outset the extraordinary complexity of the Commission's task. Congress sought to foster competition in the telephone industry, and plainly believed that merely removing affirmative legal obstructions would not do the job. It thus charged the Commission with identifying those network elements whose lack would "impair" would-be competitors' ability to enter the market, yet gave no detail as to either the kind or degree of impairment that would qualify. We review the two orders with this in mind.

A. Unvarying Scope

As to almost every element, the Commission chose to adopt a uniform national rule, mandating the element's unbundling in every geographic market and customer class, without regard to the state of competitive impairment in any particular market. As a result, UNEs will be available to CLECs in many markets where there is no reasonable basis for thinking that competition is suffering from any impairment of a sort that might have the object of Congress's concern.

One reason for such market-specific variations in competitive impairment is the cross-subsidization often ordered by state regulatory commissions, typically in the name of universal service. This usually brings about undercharges for some subscribers (usually rural and/or residential) and overcharges for the others (usually urban and/or business). Petitioners' opening brief in the Local Competition Order case cites testimony of a former FCC Chairman for the proposition that 40% of telephone service is charged below cost, Petitioners' Br. at 35 & n.16, and the Commission and its supporting intervenors do not demur. See also, e.g., Robert W.

Crandall & Thomas W. Hazlett, *Telecommunications Policy Reform in the United States and Canada,* at 18, Working Paper 00-9, AEI-Brookings Joint Center for Regulatory Studies (Dec.2000) (chart showing that in many American cities, businesses are charged substantially more than residences for single lines); see also generally ROBERT W. CRANDALL & LEONARD WAVERMAN, WHO PAYS FOR UNIVERSAL SERVICE? WHEN SUBSIDIES BECOME TRANSPARENT (2000).

Competitors will presumably not be drawn to markets where customers are already charged below cost, unless either (1) the availability of UNEs priced well below the ILECs' historic cost makes such a strategy promising, or (2) provision of service may, by virtue of economies of scale and scope, enable a CLEC to sell complementary services (such as long distance or enhanced services) at prices high enough to cover incomplete recovery of costs in basic service. The Commission never explicitly addresses by what criteria want of unbundling can be said to impair competition in such markets, where, given the ILECs' regulatory hobbling, any competition will be wholly artificial. And, although it offers an explanation as to why it is desirable as a general matter that CLECs should have "ubiquitous" unimpaired access to network elements, see Local Competition Order, 15 FCC Rcd at 3744, ¶¶ 97-98, it never explains why the record supports a finding of material impairment where the element in question--though not literally ubiquitous--is significantly deployed on a competitive basis in those markets where there is no reason to suppose that rates are artificially low, compare *id.* at 3847, ¶ 335 (finding that 47 of the top 50 areas have 3 or more competitors providing interoffice transport), with *id.* at 3849, ¶ 340 (finding absence of requisite ubiquity for such transport).

But it is in the other segments of the markets, where presumably ILECs must charge *above* cost (at least above average costs allocated in conventional regulatory fashion) in order to offset their losses in the subsidized markets, that the gap in the Commission's reasoning is greatest. In finding that the CLECs' lack of access to each of the many elements "materially diminish [ed]" their ability to provide service, the Commission nowhere appears to have considered the advantage CLECs enjoy in being free of any duty to provide underpriced service to rural and/or residential customers and thus of any need to make up the difference elsewhere. As a matter of pure language, perhaps, one might regard as an "impairment" any cost disadvantage that the CLECs suffer in markets where ILECs are hampered by regulatory redistribution, even if the disadvantage is fully offset by the exigencies faced by ILECs. But the Commission has never explained why such a view makes sense. Indeed, pointing to evidence of considerable investment by CLECs in facilities for service in what are evidently the relatively overcharged markets, see, e.g., Petitioners' Br. at 16 (noting that as of 1999, CLECs had deployed transport facilities in all of the top 50 markets), the petitioners argue that there has been little or no real net impairment. The Commission responds with an expression of doubt whether these "data accurately reflects [sic] the extent to which alternatives are actually available to competitors." Local Competition Order, 15 FCC Rcd at 3849, ¶ 341. But because the Commission has loftily abstracted away all specific markets, and because its concept of impairing cost-differentials is so broad (an issue discussed below), we have no way of assessing the real meaning of that conclusion.

We now turn to the reasons offered by the Commission for adopting an undifferentiated national rule for each element (with narrow exceptions). Having found legal authority to adopt such a rule, it said that it would help achieve the goals

of the Act, to wit: (1) rapid introduction of competition, (2) promotion of facilities-based competition, investment and innovation, (3) certainty in the marketplace, (4) administrative practicality and (5) reduced regulation. See Local Competition Order, 15 FCC Rcd at 3754-62, ¶¶ 124- 143; see also 47 C.F.R. § 51.317(b)(3) (identifying same five factors as guiding Commission decision whether to unbundle a network element).

We first address the third and fourth justifications, both of which seemingly turn on how clear any non-universal rule can be. The Commission appears simply to assume that any such rule would be unpredictable and hard to apply. Yet the Commission itself, in regard to circuit switches, chose a partial rule, denying unbundling for local circuit switches serving customers with four or more lines in the highest-density zone in any of the top 50 Metropolitan Statistical Areas ("MSAs"). See Local Competition Order, 15 FCC Rcd at 3823-31, ¶¶ 278-99. The Commission's order has no explanation of why comparable differentiation was not available for other elements.

As to reduced regulation, the Commission says that a national list "will result immediately in reduced regulation." *Id.* at 3762, ¶ 143. It does not elaborate on this counterintuitive proposition. It goes on to say that a national list is consistent with "the deregulatory goals of the Act":

> Reduced regulation will occur as we remove elements from the list as requesting carriers are no longer impaired without access to those elements, and it otherwise does not further the goals of the Act to continue requiring incumbent LECs to unbundle them.

Id. We understand that elimination of an entire universal mandate at one whack will achieve more deregulation than

removal of a partial mandate. But imposition of a national mandate does not itself entail national elimination, and in any event we cannot see how imposition and then retraction of a national mandate is more deregulatory, overall, than imposition and retraction of a partial one.

This leaves the more substantive justifications--the ideas that universal rules would promote the goals of the Act by leading to rapid introduction of competition, Local Competition Order, 15 FCC Rcd at 3754-57, ¶¶ 125-33, and to promotion of facilities-based competition, investment, and innovation, *id.* at 3757-60, ¶¶ 134-39. Using certain definitions, the first point--more rapid introduction of competition--indeed follows automatically. If competition performed with ubiquitously provided ILEC facilities counts, the more unbundling there is, the more competition. The Commission, here in unison with the ILEC petitioners, evidently assumes that the Commission-imposed prices are highly attractive to CLECs; on that assumption, universal rules encompassing as many elements as possible would indeed generate a rapid spread of "competition."

But the Commission never makes the argument in quite so stark a form, unwilling to embrace the idea that such completely synthetic competition would fulfill Congress's purposes. Thus it turns to the argument that universal rules promote investment and facilities-based competition.

The Commission says that "adoption of a national list" will "facilitate the deployment" of competitive facilities. *Id.* at 3757, ¶ 134. There are plainly two sides to the effects on investment of ubiquitously available UNEs at Commission-mandated prices. On one side, the more widespread the availability of elements that can be more efficiently provided by the incumbent (presumably because of economies of scale and scope--an issue to which we'll return), the quicker

competitors will set about providing the other elements and offering of complete competitive service, including long distance service. Compare *Iowa Utilities Board,* 525 U.S. at 416-17, 119 S. Ct. at 747-48 (Breyer, J., concurring in part and dissenting in part), cited at Respondent's Br. 32-33. Further, access to UNEs may enable a CLEC to enter the market gradually, building a customer base up to the level where its own investment would be profitable.

On the other side, the petitioners argued before the Commission that mandatory unbundling at Commission-mandated prices reduces the incentives for innovation and investment in facilities. Their reasoning, of course, is that a regulated price below true cost will reduce or eliminate the incentive for an ILEC to invest in innovation (because it will have to share the rewards with CLECs), and also for a CLEC to innovate (because it can get the element cheaper as a UNE). Indeed, many prices that *seem* to equate to cost have this effect. Some innovations pan out, others do not. If parties who have not shared the risks are able to come in as equal partners on the successes, and avoid payment for the losers, the incentive to invest plainly declines.[3] See *Iowa Utilities Board,*

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[3]The Commission's standard for deciding that a network element should be unbundled--whether lack of access to it "*materially diminishes*" the requesting carrier's "ability" to provide the services in question--implicitly builds in a relation to the prices at which CLECs get access to UNEs. (The Commission is rarely clear on precisely what costs are being compared, but in saying that lack of access to unbundled elements would cause a material increase in cost it often uses terms implying that the comparison is to the Commission-mandated price of unbundled elements, i.e., at present TELRIC. See, e.g., 15 FCC Rcd at 3815, ¶ 263; *id.* at 3864, ¶ 375.) Lack of access would not diminish the requester's ability at all if it could secure the function more cheaply on its own. Thus, the closer the Commission's pricing principle is to the low end of what it may lawfully set, the greater the probability that lack of access would cause "material

525 U.S. at 428-29, 119 S. Ct. at 753-54 (Breyer, J., concurring in part and dissenting in part); cf. *FPC v. Hope Natural Gas Co.*, 320 U.S. 591, 647-53, 64 S. Ct. 281, 309-12, 88 L.Ed. 333 (1944) (Jackson, J., dissenting) (discussing supply implications of cost-based regulation of natural gas production). In any event, the Commission's own assumption that universal access to virtually all network elements would prove attractive (leading to rapid introduction of "competition") suggests that such a disincentive effect cannot be discounted a priori.

The Commission's only response is to point to evidence that both CLECs and ILECs have built facilities since passage of the 1996 Act (the same evidence invoked by the ILECs to show the existence of many markets where unbundling is unneeded), despite the Act's obviously having created a prospect of unbundling. Local Competition Order, 15 FCC Rcd at 3758-59, ¶¶ 135-38. But the existence of investment of a specified level tells us little or nothing about incentive effects. The question is how such investment compares with what would have occurred in the absence of the prospect of unbundling, compare *Sugar Cane Growers Cooperative of Florida v. Veneman*, 289 F.3d 89, 94 (D.C.Cir.2002); *Competitive Enterprise Institute v. NHTSA*, 956 F.2d 321, 325 (D.C.Cir.1992), an issue on which the record appears silent. Although we can't expect the Commission to offer a precise

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diminution." As a result low UNE prices would not only have the direct effect mentioned in the text, but would inherently tend to expand the sphere of these effects. As the "price squeeze" jurisprudence shows, even prices that are set within the band of what is lawfully permissible may have perverse effects, and the Commission may be obligated to consider them. Cf. *FPC v. Conway Corp.*, 426 U.S. 271, 278-79, 96 S. Ct. 1999, 2004-05, 48 L.Ed.2d 626 (1976); *Sprint Communications Co. L.P. v. FCC*, 274 F.3d 549, 555 (D.C.Cir.2001).

assessment of disincentive effects (a lack of multiple regression analyses is not ipso facto arbitrary and capricious), we can expect at least some confrontation of the issue and some effort to make reasonable trade-offs.

In the end, then, the entire argument about expanding competition and investment boils down to the Commission's expression of its belief that in this area more unbundling is better. But Congress did not authorize so open-ended a judgment. It made "impairment" the touchstone. The Commission argues that § 251(d)(2), directing it to consider necessity and impairment "at a minimum," clearly allows it to consider other elements. We assume in favor of the Commission that is so. But to the extent that the Commission orders access to UNEs in circumstances where there is little or no reason to think that its absence will genuinely impair competition that might otherwise occur, we believe it must point to something a bit more concrete than its belief in the beneficence of the widest unbundling possible.

Besides the analysis described above, the Commission addressed the question whether *Iowa Utilities Board* precluded its adoption of universal rules for each network element. It concluded that nothing in that opinion would require it "to determine, on a localized state-by-state or market-by-market basis which unbundled elements are to be made available." Local Competition Order, 15 FCC Rcd at 3753, ¶ 122. We certainly agree that the Court's brief passage reversing the Commission on the impairment issue contained little detail as to the "right" way for the Commission to go about its work. But the Court's point that if "Congress had wanted to give blanket access to incumbents' networks," it "would simply have said (as the Commission in effect has) that whatever requested element can be provided must be provided," *Iowa Utilities Board,* 525 U.S. at 390, 119 S. Ct. at 735, suggests

that the Court read the statute as requiring a more nuanced concept of impairment than is reflected in findings such as the Commission's--detached from any specific markets or market categories.

B. Kinds of Cost Disparities

Petitioners complain that the Commission myopically focused on "cost differences," thereby skewing its inquiry to produce the maximum unbundling.

Of course any cognizable competitive "impairment" would necessarily be traceable to some kind of disparity in cost. Indeed, the ILECs argued before the Commission and the Supreme Court that Congress intended that the impairment standard embody the criteria of the "essential facilities" doctrine, see *Iowa Utilities Board,* 525 U.S. at 388, 119 S. Ct. at 734, which itself turns on concepts of cost. The doctrine's basic idea is that where one firm controls some facility (such as a bridge) that is essential for competition in a broader market, and it would make *no economic sense* for competitors to duplicate the facility, and certain other criteria are satisfied, see generally Phillip E. Areeda & Herbert Hovenkamp, 3A Antitrust Law ¶¶ 771-73 (1996), the owner may be compelled to share the facility with its competitors. The classic case where competitor duplication would make no economic sense is where average costs are declining throughout the range of the relevant market. See Areeda & Hovenkamp, *supra,* at ¶ 771c; see also 2 Alfred E. Kahn, The Economics of Regulation: Principles and Institutions 119 (1989). In such a case, duplication, even by the most efficient competitors imaginable, would only lead to higher unit costs for all firms, and thus for customers. See Areeda & Hovenkamp, *supra,* at ¶ 771c; 2 Kahn, *supra,* at 122; see also generally *Iowa Utilities Board,* 525 U.S. at 416-17, 427-31, 119 S. Ct. at 747-48, 752-

54 (Breyer, J., concurring in part and dissenting in part).[4] Thus the Supreme Court in *Verizon* observed that "entrants may need to share some facilities that are *very expensive to duplicate* (say, loop elements) in order to be able to compete in other, *more sensibly duplicable* elements (say, digital switches or signal-multiplexing technology)." *Verizon,* 535 U.S. at ---- n. 27, 122 S. Ct. at 1672 n. 27 (emphasis added). See also *id.* at ---- n. 27, 122 S. Ct. at 1672 n. 27 (characterizing the elements with respect to which new entrants and incumbents are *not* required to compete (i.e., the elements to be unbundled) as those " 'the duplication of [which] would prove unnecessarily expensive' ") (quoting Justice Breyer, *post,* at 419, dissenting).

Petitioners' position here is fundamentally that the Commission relied on cost disparities that, far from being any indication that competitive supply would be wasteful, are simply disparities faced by virtually any new entrant in any sector of the economy, no matter how competitive the sector. See Petitioners' Br. at 28. Indeed, the Commission's order does reflect an open-ended notion of what kinds of cost disparity are relevant.

For example, in the discussion of local switching, the Commission notes that there are economies of scale in switches, Local Competition Order, 15 FCC Rcd at 3812-13, ¶ 259, and that it is cheaper to buy a 20,000-line switch than four increments of 5000 lines each, *id.* at 3813, ¶ 260. The Commission refers explicitly to a CLEC's probable inability

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[4]Compare William J. Baumol, *On the Proper Cost Tests for Natural Monopoly in a Multiproduct Industry,* 67 AMER. ECON. REV. 809 (1977) (proposing concept of "subadditivity" for ascertainment of natural monopoly), and WILLIAM W. SHARKEY, THE THEORY OF NATURAL MONOPOLY (1982) (further development of subadditivity).

to enjoy scale economies comparable to ILECs' "*particularly in the early stages of entry.*" *Id.* at 3814, ¶ 261 (emphasis added). But average unit costs are necessarily higher at the outset for any new entrant into virtually any business. The Commission has in no way focused on the presence of economies of scale "*over the entire extent of the market.*" 2 Kahn, *supra,* at 119 (emphasis added). Without a link to this sort of cost disparity, there is no particular reason to think that the element is one for which multiple, competitive supply is unsuitable. See generally *id.* at 119-26.

The Commission of course has recognized that marketplace changes and increases in competition may justify later reductions in unbundling mandates. See, e.g., Local Competition Order, 15 FCC Rcd at 3704, ¶ 15. But this acknowledgement doesn't respond to the analytical problem. To rely on cost disparities that are universal as between new entrants and incumbents in *any* industry is to invoke a concept too broad, even in support of an *initial* mandate, to be reasonably linked to the purpose of the Act's unbundling provisions.

Each unbundling of an element imposes costs of its own, spreading the disincentive to invest in innovation and creating complex issues of managing shared facilities. See *Iowa Utilities Board,* 525 U.S. at 428-29, 119 S. Ct. at 753-54 (Breyer, J., concurring in part and dissenting in part). At the same time--the plus that the Commission focuses on single-mindedly--a broad mandate can facilitate competition by eliminating the need for separate construction of facilities where such construction would be wasteful. *Id.* at 416-17, 119 S. Ct. at 747-48. Justice Breyer concluded that fulfillment of the Act's purposes therefore called for "balance" between these competing concerns. *Id.* at 429-30, 119 S. Ct. at 753-54. A cost disparity approach that links "impairment" to universal

characteristics, rather than ones linked (in some degree) to natural monopoly, can hardly be said to strike such a balance. The Local Competition Order reflects little Commission effort to pin "impairment" to cost differentials based on characteristics that would make genuinely competitive provision of an element's function wasteful.

Petitioners here do not explicitly attack the Commission for its refusal to incorporate the essential facilities doctrine, and we do not intend to suggest that the Act requires use of that doctrine's criteria.[5] But what we do say is that cost comparisons of the sort made by the Commission, largely devoid of any interest in whether the cost characteristics of an "element" render it at all unsuitable for competitive supply, seem unlikely either to achieve the balance called for explicitly by Justice Breyer or implicitly by the Court as a whole in its disparagement of the Commission's readiness to find "*any*" cost disparity reason enough to order unbundling. The Commission's addition of a materiality notion, see Local Competition Order, 15 FCC Rcd at 3725, ¶ 51 (finding impairment in any case where lack of access to an element "materially" diminishes ability to provide services), submits to the Court's ruling in a nominally quantitative sense (though the reality of such acquiescence cannot be measured and may be belied by the virtual identity of the old and new orders). More important, adding the adjective "material" contributes nothing of any analytical or qualitative character that would

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[5]We note that scholars have raised very serious questions about the wisdom of the essential facilities doctrine as a justification for judicial mandates of competitor access, and accompanying judicial price setting. See, e.g., Areeda & Hovenkamp, *supra*, at ¶ 771c. But a doctrine that is inadequate for that purpose may nonetheless offer useful concepts for agency guidance when Congress has *directed* an agency to provide competitor access in a specific industry.

fulfill the Court's demand for a standard "rationally related to the goals of the Act." *Iowa Utilities Board,* 525 U.S. at 388, 119 S. Ct. at 734.

Because the Commission's concept of "impairing" cost disparities is so broad and unrooted in any analysis of the competing values at stake in implementation of the Act, we cannot uphold even the two non-universal mandates adopted by the Commission (for circuit switches and packet switches).

Petitioners also attack the rules on specific elements. Some of these attacks parallel the universality and cost-disparity issues already discussed. Petitioners' critique as to advanced services equipment coalesces with the issues they raise about the Line Sharing Order (see below). This leaves two issues, neither of which we need address here. First, petitioners attack the Commission's requirements of certain information disclosure and "loop conditioning." After remand, these issues may well be moot, and if they recur will do so in a different context. Second, petitioners argue that the "enhanced extended link" condition to the exception to the switch unbundling mandate is in reality a mandate to combine otherwise uncombined network elements, and is therefore invalid. The Supreme Court appears to have definitely removed the basis of this claim, holding that the Commission has authority to require such combinations, affirmatively--that is, not merely as a condition to an unbundling exception. See *Verizon,* 535 U.S. at ---- - ----, 122 S. Ct. at 1681-87. If any comparable claim somehow survives, it too can be raised in the remand proceedings.

III. The Line Sharing Order

Petitioners primarily attack the Line Sharing Order on the ground that the Commission, in ordering unbundling of the high frequency spectrum of copper loop so as to enable CLECs

to provide DSL services, completely failed to consider the relevance of competition in broadband services coming from cable (and to a lesser extent satellite). We agree.

The Commission's own findings (in a series of reports under § 706 of the 1996 Act) repeatedly confirm both the robust competition, and the dominance of cable, in the broadband market. The first § 706 report found that "[n]umerous companies in virtually all segments of the communications industry are starting to deploy, or plan to deploy in the near future, broadband to the consumer market," including "cable television companies, incumbent LECs, some utilities, and 'wireless cable' companies." *In the Matter of Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996,* 14 FCC Rcd 2398, 2404 ¶ 12 (1999). The Commission also noted that the "most popular offering of broadband to residential consumers is via 'cable modems'...." *id.* at 2426, ¶ 54, that "no competitor has a large embedded base of paying residential consumers," *id.* at 2423, ¶ 48, and that the "record does not indicate that the consumer market is inherently a natural monopoly," *id.* The most recent § 706 Report (not in the record of this case) is consistent: As of the end of June 2001, cable companies had 54% of extant high-speed lines, almost double the 28% share of asymmetric DSL. *Third Report Pursuant to § 706,* 2001 WL 186930, 2002 FCC LEXIS 655, at ¶¶ 44, 48 (Feb. 6, 2002). Even in the Local Competition Order on review in this case, the Commission said, "Competitive LECs and cable companies appear to be leading the incumbent LECs in their deployment of advanced services." 15 FCC Rcd at 3835, ¶ 307.

Relying on the Commission's repeated findings, petitioners argue that it is "antithetical to the 1996 Act's language and deregulatory objectives" to mandate unbundling in a market that "already has intense facilities-based competition." DSL Petitioners' Br. at 3. They note the Supreme Court's observation that a proper "impairment" standard should be limited by the "goals of the Act." *Id.* at 23 (quoting *Iowa Utilities Board,* 525 U.S. at 388, 119 S. Ct. at 734-35).

The Commission's response to this argument is to say that it was "merely adhering" to the letter of the statute: Thus it quotes the instruction of § 251(d)(2)(B) that it consider whether "failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services *that it seeks to offer.*" DSL Respondent's Br. at 20, quoting 47 U.S.C. § 251(d)(2)(B) (emphasis added by Respondent). On this theory the Commission believes it was justified in focusing solely on DSL because that is what "CLECs seek to offer when they request line sharing." *Id.* at 21. The Commission thus appears to acknowledge that it adopted the Line Sharing Order with indifference to petitioners' contentions about the state of competition in the market.

The Commission's inference from § 251(d)(2)(B)'s allusion to the services the requester "seeks to offer" strikes us as quite unreasonable. See *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.,* 467 U.S. 837, 842-43, 104 S. Ct. 2778, 2781-82, 81 L.Ed.2d 694 (1984). As Justice Breyer's separate opinion carefully explained, mandatory unbundling comes at a cost, including disincentives to research and development by both ILECs and CLECs and the tangled management inherent in shared use of a common resource. *Iowa Utilities Board,* 525 U.S. at 428-29, 119 S. Ct. at 753-54.

And, as we said before, the Court's opinion in *Iowa Utilities Board,* though less explicit than Justice Breyer on the need for balance, plainly recognized that unbundling is not an unqualified good--thus its observation that the Commission must "apply *some* limiting standard, rationally related to the goals of the Act," *id.* at 388, 119 S. Ct. at 734, and its point that the Commission "cannot, consistent with the statute, blind itself to the availability of elements outside the incumbent's network," *id.* at 389, 119 S. Ct. at 725. In sum, nothing in the Act appears a license to the Commission to inflict on the economy the sort of costs noted by Justice Breyer under conditions where it had no reason to think doing so would bring on a significant enhancement of competition. The Commission's naked disregard of the competitive context risks exactly that result.

Accordingly, the Line Sharing Order must be vacated and remanded. Obviously any order unbundling the high frequency portion of the loop should also not be tainted by the sort of error identified in our discussion of the Local Competition Order and identified by petitioners here as well.

Petitioners also claim that the Commission without explanation reversed a prior decision that a portion of the spectrum of a loop cannot qualify as a "network element." The Commission urges that any language suggesting such a view is explicable as simply reflecting a judgment on technical feasibility, which it here reversed on the basis of a reexamination of the facts. Line Sharing Order, 14 FCC Rcd at 20942-43, ¶ 63. We think the Commission's view is convincing.

Finally, petitioners attack the Commission's pricing rule, which limited an ILEC's charges for access to the high frequency portion of the loop to the value the ILEC "allocated to [asymmetric] DSL services when it established its interstate

retail rates for those services," even where this rule would reduce the charges below the level derived from the Commission's general UNE pricing principles. Line Sharing Order, 14 FCC Rcd at 20975-76, ¶ 139. As in the case of the element-specific claims raised in the Local Competition Order case, we think the possible mootness, and certainty that any recurrence will be in a different context, warrant deferring the issue to another day.

* * *

We grant the petitions for review, and remand both the Line Sharing Order and the Local Competition Order to the Commission for further consideration in accordance with the principles outlined above.

So ordered.

Appendix B

Federal Communications Commission

Before the
Federal Communications Commission
Washington, DC

In the Matter of	)	
Implementation of the	)	CC Docket No. 96-98
Local Competition Provisions	)	
of the Telecommunications Act	)	
of 1996	)	

THIRD REPORT AND ORDER AND FOURTH FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: Sept. 15, 1999 **Released: Nov. 5, 1999**

Comment Date: January 12, 2000

Reply Date: February 11, 2000

By the Commission: Commissioner Ness issuing a statement; Commissioner Furchtgott-Roth concurring in part, dissenting in part and issuing a statement; Commissioner Powell dissenting in part and issuing a statement.

I. INTRODUCTION

1. In this proceeding, we respond to the Supreme Court's January 1999 decision that directs us to reevaluate the unbundling obligations of section 251 of the

Telecommunications Act of 1996 (1996 Act).[1] The Supreme Court's decision removed many of the uncertainties surrounding the requirements of section 251 by upholding the majority of the Commission's rules implementing that section of the Act, including the Commission's jurisdiction to implement sections 251 and 252 of the Act, the Commission's definitions of network elements, and the Commission's rule requiring incumbent local exchange carriers (LECs) to offer combinations of unbundled network elements that are already combined. The Court has directed us, however, to revise the standards under which the unbundling obligations of section 251(c)(3) are determined. Specifically, the Court has required us to give some substance to the "necessary" and "impair" standards in section 251(d)(2), and to develop a limiting standard that is "rationally related to the goals of the Act." In addition, as we develop the "necessary" and "impair" standards, the Court has required us to consider the availability of alternative network elements outside the incumbent's network.[2]

2. In passing the 1996 Act, Congress overhauled many aspects of federal regulation of telecommunications services by establishing a pro-competitive and deregulatory framework designed to benefit "all Americans by opening all telecommunications markets to competition."[3] Two of the fundamental goals of the 1996 Act are to open the local exchange and exchange access markets to competition and to

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[1]Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56, codified at 47 U.S.C. §§ 151 et seq. (1996 Act).

[2]AT&T v. *Iowa Utils. Bd.*, 119 S. Ct. 721, 734-36 (1999) (*Iowa Utils. Bd.*).

[3]Joint Statement of Managers, S. Conf. Rep. No. 104-230, 104th Cong., 2d Sess., at 1 (1996) (Joint Explanatory Statement).

promote innovation and investment by all participants in the telecommunications marketplace.[4] Congress sought to foster this competition by fundamentally changing the conditions and incentives for market entry and by attempting to open any remaining local service bottlenecks.[5] As a result, the provisions of the 1996 Act set the stage for a new competitive paradigm in which carriers in previously segmented markets are able to compete in a dynamic and integrated telecommunications market that promises lower prices and more innovative services to consumers.

3. Central to the new statutory scheme is section 251 of the Act, which seeks generally to reduce inherent economic and operational advantages possessed by incumbent local exchange carriers. Toward this end, section 251 imposes specific market-opening mechanisms, such as mandatory interconnection, unbundling, and resale requirements on incumbent LECs, in order to break the incumbents' control over local facilities.[6] Congress directed the Commission to implement the provisions of section 251, and to specifically determine which network elements should be unbundled pursuant to section 251(c)(3).[7]

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[4]Joint Explanatory Statement at 1.

[5]*See* BellSouth Corp. v. FCC, 144 F.3d 58, 61 (D.C. Cir. 1998) ("The 1996 Act rescinded the [Modified Final Judgment] . . . and changed the entire telecommunications landscape.").

[6]47 U.S.C. §§ 251(c)(3) and (d)(2). The Act also encourages new entrants to construct their own competitive facilities. In particular, it requires incumbent LECs to interconnect competitive LECs' facilities and equipment with their networks. 47 U.S.C. § 251(c)(2).

[7]Section 251(d)(2) states that "in determining what network elements should be made available for purposes of subsection (c)(3), the Commission shall consider, at a minimum whether [the elements meet the "necessary" and "impair" standards]. 47 U.S.C. § 251(d)(2) (emphasis added).

4. Pursuant to our statutory mandate and the directives of the Supreme Court, we reevaluate the unbundling obligations of incumbent LECs, pursuant to sections 251(c)(3) and 251(d)(2). The new standards and framework we adopt in this Order for determining which network elements incumbent LECs must make available on an unbundled basis will remove the uncertainties surrounding the incumbents' unbundling obligations since passage of the Act. More importantly, however, they will define the competitive landscape of telecommunications markets for the foreseeable future.

5. The standards and unbundling obligations that we adopt in this Order are designed to create incentives for both incumbent and competitive LECs to innovate and invest in technologies and services that will benefit consumers through increased choices of telecommunications services and lower prices. We recognize that there will be a continuing need for all three of the arrangements Congress set forth in section 251 to remain available to competitors so that they can serve different types of customers in different geographic areas.[8] We continue to believe that the ability of requesting carriers to use unbundled network elements, including various combinations of unbundled network elements, is integral to

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[8] *See* Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, First Report and Order, 11 FCC Rcd 15499, 15509, para. 12 (1996) (*Local Competition First Report and Order*), aff'd in part and vacated in part sub nom., Competitive Telecommunications Ass'n v. FCC, 117 F.3d 1068 (8th Cir. 1997) (CompTel v. FCC) and *Iowa Utils. Bd.* v. FCC, 120 F.3d 753 (8th Cir. 1997) (*Iowa Utils. Bd.* v. FCC), aff'd in part and remanded, AT&T v. *Iowa Utils. Bd.*, 119 S. Ct. 721 (1999); Order on Reconsideration, 11 FCC Rcd 13042 (1996), Second Order on Reconsideration, 11 FCC Rcd 19738 (1996), Third Order on Reconsideration and Further *Notice* of Proposed Rulemaking, 12 FCC Rcd 12460 (1997), further recons. pending.

achieving Congress' objective of promoting rapid competition to all consumers in the local telecommunications market.[9] Moreover, in some areas, we believe that the greatest benefits may be achieved through facilities-based competition, and that the ability of requesting carriers to use unbundled network elements, including various combinations of unbundled network elements, is a necessary precondition to the subsequent deployment of self-provisioned network facilities.

6. Although Congress did not express explicitly a preference for one particular competitive arrangement, it recognized implicitly that the purchase of unbundled network elements would, at least in some situations, serve as a transitional arrangement until fledgling competitors could develop a customer base and complete the construction of their own networks. In particular, Congress stated: "[I]t is unlikely that competitors will have a fully redundant network in place when they initially offer local service because the investment necessary is so significant. Some facilities and capabilities . . . will likely need to be obtained from the incumbent [LEC] as network elements pursuant to new section 251."[10] Implicit in this recognition, and in section 271's requirement that the Bell Operating Companies (BOCs) provide access and interconnection to their network facilities in accordance with the requirements in the competitive checklist, is Congress's expectation that new competitors would use unbundled elements from the incumbent LEC until

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[9]*See Local Competition First Report and Order*, 11 FCC Rcd at 15509, para. 12.

[10]Joint Explanatory Statement at 148.

it was practical and economically feasible to construct their own networks.[11]

7. We fully expect that over time competitors will prefer to deploy their own facilities in markets where it is economically feasible to do so, because it is only through owning and operating their own facilities that competitors have control over the competitive and operational characteristics of their service, and have the incentive to invest and innovate in new technologies that will distinguish their services from those of the incumbent. Unbundling rules that encourage competitors to deploy their own facilities in the long run will provide incentives for both incumbents and competitors to invest and innovate, and will allow the Commission and the states to reduce regulation once effective facilities-based competition develops.[12] Accordingly, the

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[11] *See* 47 U.S.C. § 271(c)(2)(B).

[12] *See* Promotion of Competitive Networks in Local Telecommunications Markets, *Notice* of Proposed Rulemaking and *Notice* of Inquiry in WT Docket No. 99-217 and Third Further *Notice* of Proposed Rulemaking in CC Docket No. 96-98, FCC 99-141, paras. 4, 23 (rel. July 7, 1999) (Competitive Networks *Notice*) ("We believe that, in the long term, the most substantial benefits to consumers will be achieved through facilities-based competition, because only facilities-based competitors can break down the incumbent LECs' bottleneck control over local networks and provide services without having to rely on their rivals for critical components of their offerings. Moreover, only facilities-based competition can fully unleash competing providers' abilities and incentives to innovate, both technologically and in service development, packaging, and pricing. . . . In order for competitive networks to develop, the incumbent LECs' bottleneck control over interconnection must dissipate. As the market matures and the carriers providing services in competition with the incumbent LECs' local exchange offerings grow, we believe these carriers may establish direct routing arrangements with one another, forming a network of networks around the current system. In time, it is likely that the incumbent LECs will cease to be viewed as the presumptive primary

unbundling rules we adopt in this proceeding seek to promote the development of facilities-based competition.

8. We believe that the "necessary" and "impair" standards we adopt below address the Supreme Court's mandate and implement the statutory language and goals of the Act. The standards we adopt take into consideration alternatives outside the incumbent LEC's network, and whether those alternatives are actually available to the requesting carrier as a practical, economic, and operational matter. We consider not only the direct costs, but also other costs and impediments associated with using alternative elements that may constitute barriers to entry. We believe the Commission must assess these factors to determine the availability of alternatives, and whether access to the incumbent's network element thereby satisfies the " necessary" and "impair" standards of section 251(d)(2).

9. The unbundling standards we adopt in this Order also seek to encourage the rapid introduction of competition in all markets, including residential and small business markets. They seeks to create incentives for both incumbents and requesting carriers to invest and innovate in new technologies by establishing a mechanism by which regulatory obligations to provide access to network elements will be reduced as alternatives to the incumbent LECs' network elements become available in the future. In addition, the standards provide reasonable certainty regarding the availability of unbundled elements, thereby allowing requesting carriers to attract investment capital and move forward with

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providers of interconnection, and indeed they will begin to seek interconnection and other arrangements with their challengers. These circumstances would strengthen the case for substantial deregulation of the incumbent LECs.").

implementing national and regional business plans that will allow them to serve the greatest number of consumers

10. To date, we have seen the development of facilities-based competition among providers of particular services in certain sectors of the market. For example, as discussed in more detail below, competitors have deployed their own fiber rings and approximately 700 circuit switches to provide local exchange and exchange access services primarily to medium and large business customers in high-density metropolitan areas.[13] In addition, the record in this proceeding suggests that a growing number of carriers are deploying packet switches to provide data services in a number of markets, particularly for end users with substantial telecommunications needs.[14]

11. Other local markets, however, particularly the residential and small business markets, and geographic markets outside of major metropolitan areas, have seen minimal competition. This may be due to the uncertainty surrounding the ability of competitive LECs to use reasonably priced unbundled network elements to serve these areas as a result of litigation concerning the Commission's unbundling rules.[15] Because unbundled network elements have not been made fully available to requesting carriers as the Commission expected in 1996, we do not yet know the extent to which competition will develop once all of the unbundling rules are actually implemented by incumbent LECs.

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[13] *See infra* Section V(D)(1).

[14] *See infra* Section V(D)(2).

[15] *See* MCI WorldCom Comments, Tab 1, Decl. of Judith R. Levine/Ronald J. McMurtrie, at para. 7.

12. Only recently have incumbent LECs provided access to combinations of unbundled loops, switches, and transport elements, often referred to as "the platform." Since these combinations of unbundled network elements have become available in certain areas, competitive LECs have started offering service in the residential mass market in those areas. For example, in January of this year, Bell Atlantic, as part of an agreement with the New York Public Service Commission, began offering the unbundled network element platform out of particular end offices in New York City. As a result, MCI WorldCom had acquired upwards of 60,000 new local residential customers in New York as of June 1999.[16] AT&T also plans to serve local residential customers over the platform in Texas.[17]

13. For effective competition to develop as envisioned by Congress, competitors must have access to incumbent LEC facilities in a manner that allows them to provide the services that they seek to offer, as contemplated in section 251(d)(2) of the Act. Despite the development of competition in some markets, incumbents still control the vast majority of the facilities that comprise the local telecommunications network, giving them advantages of economies of scale and scope not enjoyed by competitive LECs.[18] Because

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[16]*Id.* at para. 17.

[17]Letter from Frank S. Simone, Government Affairs Director, AT&T, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98, Attachment at 4-5 (filed June 25, 1999).

[18]Local Competition: August 1999, Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, at 23 (August 1999) (FCC Local Competition Report) (explaining that investment analysts' estimate of total switched lines owned by competitive LECs is in the range of two to three percent of nationwide switched access lines). *See also* Texas PUC Comments at 14 (stating that in Texas, for example,

competitors do not yet enjoy the same economies of scale, scope and ubiquity as the incumbent, they may be impaired if they do not have access, at least initially, to certain network elements supplied by the incumbent LEC.[19] For example, without access to unbundled network elements, a competitive LEC may choose not to enter a particular market because the cost and delays associated with deploying its own facilities would be too high given the revenues obtainable from that market and the relative attractiveness of other potential new markets. Similarly, a competitive LEC may decline to enter a market because certain of their facilities are subject to economies of scale and scope such that the competitor would need a larger market share than it is likely to have initially. In such cases, competitors may choose to enter a certain market if they can obtain access to particular unbundled network elements on sufficiently favorable terms that such scale economies are overcome, and other potential markets no longer appear more attractive.

14. The standards and rules we adopt in this Order seek to build on industry experience and technological changes that have occurred in the telecommunications marketplace since the 1996 Act was enacted three years ago. Today, both incumbent LECs and requesting carriers are at the early stages of deploying innovative technologies to meet the ever-increasing demand for high- speed, high-capacity advanced services. To encourage competition among carriers to

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incumbent LECs own 98 percent of all access lines and have deployed 1538 switches throughout the state).

[19] *See, e.g.*, MCI WorldCom Comments, Tab 3, Decl. of Mark T. Bryant, at paras. 2-20 (describing the economies of scale to which all loop, transport and switching unbundled network elements are subject); Covad Comments at iii-iv; Prism Comments at 5-6; Qwest Comments at 8-9; AT&T Reply Comments at 45-46.

develop and deploy new advanced services, the marketplace for these services must be conducive to investment, innovation, and meeting the needs of consumers. Accordingly, our unbundling rules are designed to facilitate the rapid and efficient deployment of all telecommunications services, including advanced services. Specifically, unbundling rules that are based on a preference for development of facilities-based competition in the long run will provide incentives for both incumbents and competitors to invest and innovate, and should allow the Commission to reduce regulation once true facilities-based competition develops.

15. The unbundling standards we adopt in this order also are designed to be administratively practical and respond to changes in the marketplace as alternatives to the incumbent LECs' network elements become available. We are committed to reviewing the unbundling obligations in three years, and as the marketplace changes with the development of new technologies and increased facilities-based competition, we will modify the list of unbundled elements, as warranted.

II. EXECUTIVE SUMMARY

Section 251(d)(2)'s "Necessary" and "Impair" Standards. Section 251(d)(2)(A)' § "necessary" standard is a stricter standard that applies to proprietary network elements. Section 251(d)(2)(B)'s "impair" standard applies to non-proprietary network elements. Applying a stricter standard to proprietary network elements is consistent with Congress' intention to spur innovation and investment by both incumbent and competitive LECs. In applying these standards, we look first to what is occurring in the marketplace today.

- *Necessary.* A proprietary network element is "necessary" within the meaning of section 251(d)(2)(A) if, taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third party supplier, lack of access to that element would, as a practical, economic, and operational matter, *preclude* a requesting carrier from providing the services it seeks to offer. There are limited circumstances under which we may unbundle proprietary information or functionalities even if those elements are not strictly "necessary," as long as the "impair" standard is met. These circumstances are: (1) where an incumbent LEC, for the primary purpose of causing a particular network to be evaluated under the stricter "necessary" standard in order to avoid its unbundling obligation, implements only a minor modification to the network element to make the element proprietary; (2) where an incumbent LEC cannot demonstrate that the information or functionality that it claims is proprietary differentiates its services from its competitors' services, or is otherwise competitively significant; or (3) where lack of access to the proprietary element would jeopardize the goal of the 1996 Act to bring rapid competition to the greatest number of consumers.

- *Impair.* The incumbent LECs' failure to provide access to a non- proprietary network element "impairs" a requesting carrier within the meaning of section 251(d)(2)(B) if, taking into consideration the availability of alternative elements outside the incumbent's network, including self- provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that element *materially diminishes* a

requesting carrier's ability to provide the services it seeks to offer. In order to evaluate whether there are alternatives actually available to the requesting carrier as a practical, economic, and operational matter, we look at the totality of the circumstances associated with using an alternative. In particular, our "impair" analysis considers the cost, timeliness, quality, ubiquity, and operational issues associated with use of the alternative.

Goals of the Act. We also interpret the obligations imposed in section 251(d)(2) within the larger statutory framework of the 1996 Act. Congress apparently contemplated that we would consider additional factors by directing the Commission, in section 251(d)(2), to "consider at a *minimum*" the "necessary" and "impair" standards. The Supreme Court decision requires us to apply a limiting standard "rationally related to the goals of the Act." Accordingly, in addition to the factors set forth above, we may consider the following factors:

- *Rapid Introduction of Competition in All Markets*. We may consider whether the availability of an unbundled network element is likely to encourage requesting carriers to enter the local market in order to serve the greatest number of consumers as rapidly as possible. We also note that Congress required Bell Operating Companies to demonstrate that they are providing loops, switching, transport, signaling and databases, and operator services/directory assistance in order to obtain in-region, interLATA approval. While the section 271 checklist does not determine definitively which elements all incumbent LECs are required to unbundle pursuant to section 251, it sheds some light on what Congress believed was required to open local markets to competition. Accordingly, we believe that we may

consider whether requiring all incumbent LECs to unbundle these same elements would promote the rapid introduction of competition on a nationwide basis.

- *Promotion of Facilities-Based Competition, Investment, and Innovation*. We may consider the extent to which the unbundling obligations we adopt will encourage the development of facilities-based competition by competitive LECs, and innovation and investment by both incumbent LECs and competitive LECs, especially for the provision of advanced services.

- *Reduced Regulation*. We may consider the extent to which we can encourage investment and innovation by reducing regulatory obligations to provide access to network elements, as alternatives to the incumbent LECs' network elements become available in the future.

- *Certainty in the Market*. We may consider how the unbundling obligations we adopt can provide the uniformity and predictability that new entrants and fledgling competitors need to develop national and regional business plans. We also consider whether the rules we adopt provide financial markets with reasonable certainty so that carriers can attract the capital they need to execute their business plans to serve the greatest number of consumers.

- *Administrative Practicality*. We may consider whether the unbundling obligations we adopt are administratively practical to apply.

Modification of the National List.

- The Order recognizes that rapid changes in technology, competition, and the economic conditions of the telecommunications market will require a reevaluation of

the national unbundling rules periodically. In order to encourage a reasonable period of certainty in the market, the Commission expects to reexamine the national list of unbundled network elements in three years.

- Section 251(d)(3) permits state commissions to require incumbent LECs to unbundle additional elements as long as the obligations are consistent with the requirements of section 251 and the national policy framework instituted in this Order.

- Removal of elements from the national list on a state-by-state basis would not be consistent with section 251 and the goals of the Act.

Network Elements that Must be Unbundled. Applying the above factors, the Order concludes that the following network elements must be unbundled:

- *Loops*. Incumbent local exchange carriers (LECs) must offer unbundled access to loops, including high-capacity lines, xDSL-capable loops, dark fiber, and inside wire owned by the incumbent LEC. The unbundling of the high frequency portion of the loop is being considered in another proceeding.

- *Subloops*. Incumbent LECs must offer unbundled access to subloops, or portions of the loop, at any accessible point. Such points include, for example, a pole or pedestal, the network interface device, the minimum point of entry to the customer premises, and the feeder distribution interface located in, for example, a utility room, a remote terminal, or a controlled environment vault. The Order establishes a rebuttable presumption that incumbent LECs must offer unbundled access to subloops at any accessible terminal in their outside loop plant.

- To the extent there is not currently a single point of interconnection that can be feasibly accessed by a requesting carrier, we encourage parties to cooperate in any reconfiguration of the network necessary to create one. If parties are unable to negotiate a reconfigured single point of interconnection at multi-unit premises, we require the incumbent to construct a single point of interconnection that will be fully accessible and suitable for use by multiple carriers.

- *Network Interface Device (NID)*. Incumbent LECs must offer unbundled access to NIDs. The NID includes any potential means of interconnection with customer premises inside wiring at the point where the carrier's local loop facilities end, such as at a cross connect device used to connect the loop to customer-controlled inside wiring. This includes all features, functions, and capabilities of the facilities used to connect the loop to premises wiring, regardless of the specific mechanical design.

- *Circuit Switching*. Incumbent LECs must offer unbundled access to local circuit switching, except for local circuit switching used to serve end users with four or more lines in access density zone 1 in the top 50 Metropolitan Statistical Areas (MSAs), provided that the incumbent LEC provides non-discriminatory, cost-based access to the enhanced extended link throughout zone 1. (An enhanced extended link (EEL) consists of a combination of an unbundled loop, multiplexing/concentrating equipment, and dedicated transport. The EEL allows new entrants to serve customers without having to collocate in every central office in the incumbent's territory.) Local circuit switching includes the basic function of connecting lines and trunks on the line-side and port-side

of the switch. The definition of the local switching element encompasses all of the features, functionalities, and capabilities of the switch.

- *Packet Switching*. Incumbent LECs must offer unbundled access to packet switching only in limited circumstances in which the incumbent has placed digital loop carrier systems in the feeder section of the loop or has its Digital Subscriber Line Access Multiplexer (DSLAM) in a remote terminal. The incumbent will be relieved of this obligation, however, if it permits a requesting carrier to collocate its DSLAM in the incumbent's remote terminal on the same terms and conditions that apply to its own DSLAM. Packet switching is defined as the function of routing individual data message units based on address or other routing information contained in the data units, including the necessary electronics (*e.g.*, DSLAMs).

- *Interoffice Transmission Facilities*. Incumbent LECs must offer unbundled access to dedicated interoffice transmission facilities, or transport, including dark fiber. Dedicated interoffice transmission facilities are defined as incumbent LEC transmission facilities dedicated to a particular customer or carrier that provide telecommunications between wire centers owned by the incumbent LECs or requesting telecommunications carriers, or between switches owned by incumbent LECs or requesting telecommunications carriers. State commissions are free to establish reasonable limits governing access to dark fiber if incumbent LECs can show that they need to maintain fiber reserves.

- Incumbent LECs must also offer unbundled access to shared transport where unbundled local circuit switching is provided. Shared transport is defined as transmission

facilities shared by more than one carrier, including the incumbent LEC, between end office switches, between end office switches and tandem switches, and between tandem switches in the incumbent LEC's network.

- *Signaling and Call-Related Databases.* Incumbent LECs must offer unbundled access to signaling links and signaling transfer points (STPs) in conjunction with unbundled switching, and on a stand-alone basis. The signaling network element includes, but is not limited to, signaling links and STPs. Incumbent LECs must also offer unbundled access to call-related databases, including, but not limited to, the Line Information database (LIDB), Toll Free Calling database, Number Portability database, Calling Name (CNAM) database, Operator Services/Directory Assistance databases, Advanced Intelligent Network (AIN) databases, and the AIN platform and architecture. We do not require incumbent LECs to unbundle access to certain AIN software that qualify for proprietary treatment.

- *Operations Support Systems (OSS).* Incumbent LECs must offer unbundled access to their operations support systems. OSS consists of pre-ordering, ordering, provisioning, maintenance and repair, and billing functions supported by an incumbent LEC's databases and information. The OSS element includes access to all loop qualification information contained in any of the incumbent LEC's databases or other records, including information on whether a particular loop is capable of providing advanced services.

Network Elements that Need Not be Unbundled. The following network elements need not be unbundled:

- *Operator Services and Directory Assistance (OS/DA).* Incumbent LECs are not required to unbundle their OS/DA services pursuant to section 251(c)(3), except in the limited circumstance where an incumbent LEC does not provide customized routing to a requesting carrier to allow it to route traffic to alternative OS/DA providers. Operator services are any automatic or live assistance to a consumer to arrange for billing or completion of a telephone call. Directory assistance is a service that allows subscribers to retrieve telephone numbers of other subscribers. Incumbent LECs, however, remain obligated under the non-discrimination requirements of section 251(b)(3) to comply with the reasonable request of a carrier that purchases the incumbents' OS/DA services to rebrand or unbrand those services, and to provide directory assistance listing updates in daily electronic batch files.

- *Shared Transport where Circuit Switching is not Unbundled.* Incumbent LECs are not required to unbundle shared transport where they are not required to offer unbundled local circuit switching, as described above.

- *Packet Switching.* Incumbent LECs are not required to unbundle packet switching, except in a limited circumstance. Competitive LECs are actively deploying packet switches to serve high-volume customers, and are not impaired in their ability to offer service to such customers without access to the incumbent LEC's facilities. Competitive LECs are impaired, however, in their ability to provide services to small-volume users without access to unbundled packet switching. Nonetheless, we consider the other goals of the Act in making our unbundling determination, and conclude that given the nascent nature of the advanced services market

and the Act's goal to provide incentives to all carriers to invest and innovate, incumbent LECs are generally not required to unbundle packet switching.

Section 271-Related Issues.

- If a network element on the section 271 competitive checklist is not required to be unbundled pursuant to section 251(c)(3) (i.e., local circuit switching and shared transport in certain circumstances), Bell Operating Companies are not required to offer unbundled access to any such checklist items in compliance with the Commission's pricing rules. Rather, the applicable price, terms, and conditions for that element are determined by applying sections 201(b) and 202(a) of the Act.

Combinations of Network Elements.

- Given the pendency of litigation in the Court of Appeals for the Eighth Circuit, the Order declines to define the enhanced extended link as a separate network element, nor does it address whether an incumbent LEC must combine network elements that are not already combined in the network.

Further Notice of Proposed Rulemaking: Use of Unbundled Network Elements to Provide Exchange Access Service.

- The Further *Notice* seeks comment on whether there is any basis in the statute or our rules under which incumbent LECs could decline to provide entrance facilities (the link between an interexchange carrier's point of presence and an incumbent's switch or serving wire center) at unbundled network element prices.

- The Further *Notice* also invites parties to refresh the record on whether requesting carriers may use unbundled dedicated or shared transport facilities in conjunction with unbundled switching to originate or terminate interstate toll traffic to customers to whom the requesting carrier does not provide local exchange service.

III. BACKGROUND

16. On August 8, 1996, the Commission adopted the *Local Competition First Report and Order*, implementing the local competition provisions of the 1996 Act. In that order, the Commission established rules governing the obligations of incumbent LECs to open their local networks to competition pursuant to the requirements of section 251 of the 1996 Act. Among other things, the order adopted rules implementing the network unbundling requirements of sections 251(c)(3) and 251(d)(2) of the 1996 Act. Section 251(c)(3) imposes a duty on all incumbent LECs to provide to competitors access to network elements on an unbundled basis.[20] Section 251(d)(2) provides that, in determining which network elements should be unbundled under section 251(c)(3), the Commission shall consider, "at a minimum, whether -- (A) access to such network elements as are proprietary in nature is necessary; and (B) the failure to provide access to such network element would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer."[21]

17. In the *Local Competition First Report and Order*, the Commission applied its interpretation of the "necessary" and

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[20]Certain rural telephone companies may be exempt from the unbundling provisions of section 251. *See* 47 U.S.C. § 251(f).

[21]47 U.S.C. § 251(d)(2).

"impair" standards of section 251(d)(2) to the unbundling requirements of section 251(c)(3). Specifically, the Commission defined "necessary" to mean "an element is a prerequisite for competition,"[22] and it defined "impair" to mean "to make or cause to become worse; diminish in value."[23] The Commission also determined that a requesting carrier's ability to offer service is "impaired" or "diminished in value" if "the quality of the service the entrant can offer, absent access to the requested element, declines" or if "the cost of providing the service rises."[24]

18. After addressing the "necessary" and "impair" standards, the Commission adopted rule 51.319, which sets forth the network elements that incumbent LECs were required to make available to requesting carriers on an unbundled basis.[25] Section 51.319 of the Commission's rules required incumbent LECs to offer unbundled access to the following network elements: (1) local loops; (2) network interface devices; (3) local switching; (4) interoffice transmission facilities; (5) signaling networks and call-related databases; (6) operations support systems; and (7) operator services and directory assistance.[26] Section 51.317 of the Commission's rules allowed states to impose additional

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[22] *Local Competition First Report and Order*, 11 FCC Rcd at 15641-42, para. 282.

[23] *Id.* at para. 285 (quoting Random House College Dictionary 665 (rev. ed. 1984)).

[24] *Local Competition First Report and Order*, 11 FCC Rcd at 15643, para. 285.

[25] *Id.* at 15683, para. 366.

[26] 47 C.F.R. § 51.319. *Local Competition First Report and Order*, 11 FCC Rcd at 15641-42, paras. 281-83.

unbundling requirements pursuant to the Commission's interpretation of section 251(d)(2).[27]

19. Following adoption of the *Local Competition First Report and Order*, incumbent LECs and state commissions filed various challenges to the Commission's rules; these appeals were consolidated in the Eighth Circuit. The Eighth Circuit, among other holdings, rejected the incumbent LECs' argument that, in determining which elements were subject to the unbundling requirements, the Commission had not properly applied the "necessary" and "impair" standards of section 251(d)(2).[28] Accordingly, the Eighth Circuit upheld section 51.319. The Supreme Court granted several parties' requests to review the Eighth Circuit's decision.

20. In its January 25, 1999 opinion, the Supreme Court reversed the Eighth Circuit's decision on this issue, stated that section 51.319 should be vacated, and remanded the matter for further proceedings.[29] While the Court affirmed

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[27]47 C.F.R.. § 51.317.

[28]*Iowa Utils. Bd.* v. FCC, 120 F.3d at 808-10.

[29]*Iowa Utils. Bd.*, 119 S. Ct. at 733-36. As already noted, the Supreme Court upheld all but one of the local competition rules that had been challenged. The Supreme Court held that the Commission has general jurisdiction to implement the 1996 Act's local competition provisions, and that the Commission's rulemaking authority extends to sections 251 and 252. The Court further found that: (1) the Commission's interpretation of "network element," as including operator services and directory assistance, operational support systems, and vertical switching functions such as caller I.D., call forwarding, and call waiting, is reasonable; (2) the Commission reasonably omitted a facilities-ownership requirement; (3) the Commission's rule 51.315(b), which forbids incumbents from separating already-combined network elements before leasing them to competitors, reasonably interprets section 251(c)(3) of the 1996 Act; and (4) the Commission's "pick and choose" rule that requires an incumbent LEC to make available to any requesting carrier any individual interconnection, service, or network

that the Commission has jurisdiction to implement the local competition provisions of the 1996 Act, including the unbundling requirements in section 251, it concluded that the Commission had not adequately considered the "necessary" and "impair" standards of section 251(d)(2).[30] The Court found, among other things, that the Commission, in deciding which elements must be unbundled, did not adequately take into consideration the "availability of elements outside the incumbent's network."[31] The Court also faulted the Commission's "assumption that any increase in cost (or decrease in quality) imposed by a denial of a network element renders access to that element 'necessary,' and causes the failure to provide that element to 'impair' the entrant's ability to furnish its desired services. . ."[32] In addition, the Court criticized the Commission's interpretation of section 251(d)(2) because it "allows entrants, rather than the Commission, to determine" whether the requirements of that section are satisfied.[33] On April 16, 1999, we released a Second Further *Notice* in this docket seeking comment on the appropriate unbundling standard, and which network elements should be unbundled.[34]

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element arrangement contained in any state-approved agreement "upon the same rates, terms, and conditions as those provided in the agreement" is a reasonable interpretation of section 252(i) of the 1996 Act. *Id.* at 729-34.

[30] *Id.*, at 730-36.

[31] *Id.*, at 735.

[32] *Id.*

[33] *Id.*

[34] Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket No. 96-98, Second Further *Notice* of Proposed Rulemaking, FCC 99-70 (rel. Apr. 16, 1999) (*Notice*). A list of parties submitting Comments and Reply Comments is provided in Appendix A.

IV. FRAMEWORK FOR DECIDING WHAT NETWORK ELEMENTS MUST BE UNBUNDLED PURSUANT TO SECTION 251

A. Overview

21. In this section, we discuss our framework for determining whether a particular network element should be unbundled. We interpret the terms "necessary," "impair," and "proprietary" in section 251(d)(2) in a manner that gives substance to those terms. We then discuss how we will evaluate alternative elements that are available through self-provisioning or from third-party suppliers. In considering whether to unbundle a particular network element, we look first to what is occurring in the marketplace today. For some network elements, we are beginning to see competitors using alternatives in discrete situations. In order to determine whether these alternative sources of network elements are actually available as a practical, economic, and operational matter, so that incumbents should be free of any unbundling obligations for that element, we look at several factors, including cost, ubiquity, quality, timeliness, and operational impediments.

22. We acknowledge that given the complexity associated with a competitive LEC's decision to enter a certain market, it is extremely difficult to identify one particular factor that is dispositive of whether or not a competitor will seek to offer a particular service in any given market. For example, even where a competitive LEC's costs to provide a service may be comparable to the incumbent's costs to provide a similar service, the competitive LEC, because it cannot enter all markets simultaneously, may choose not to enter a particular market at a particular time because there are other markets that are relatively more

profitable to serve. The competitive LEC might also be dissuaded from entering a market because of subsidy distortions or other regulatory factors. Conversely, notwithstanding the fact that a competitive LEC's *infra*structure costs in a particular market may be materially different from the incumbent LECs' costs, the competitive LEC may still choose to enter that market if it can provide more services over its network *infra*structure, or offer marketing, service, or technical innovations for which customers will pay a premium.

23. Although we may not be able to identify with precision a competitor's incentives, or lack of incentives to enter a particular market, we nonetheless find that evidence demonstrating the lack of competition in certain areas of the country and among certain classes of customers is a strong indicator that there may exist economic and other types of barriers that may, at a minimum, impair a competitor's ability to compete vis-a-vis the incumbent. Accordingly, based on evidence provided in the record, we use our administrative judgment to identify several factors, including cost, ubiquity, quality, timeliness, and operational impediments, that we find particularly helpful in explaining whether a competitor's ability to provide the service it seeks to offer is impaired without access to a particular unbundled network element. Based on the actual state of competition, we look at these factors and their relationship to alternative sources of network elements to determine whether the alternatives are actually available as a practical, economic, and operational matter.

24. In particular, we examine both the direct and other costs a carrier incurs to substitute the alternative network element for the incumbent LEC's network element. We also consider whether self-provisioning or purchasing a network element from a third-party supplier would prevent a

requesting carrier from entering the market within a reasonable time, or from expanding its operations to meet promptly the demand of its customers. In addition to costs and delays, we consider whether using alternative sources of network elements introduces quality differences or operational or technical impediments that may impair a requesting carrier's ability to provide the services that it seeks to offer. Specifically, we assess whether use of an alternative source of the network element would cause a requesting carrier's customers to experience degraded service.

25. We also consider the extent to which a requesting carrier can compete for customers on a wide-spread basis using alternative sources of the elements outside the incumbent's network. In some cases, to compete effectively with the incumbent LEC for the same customers, competitive LECs must be able to attain similar economies of scale that can only be achieved by serving a broad base of customers within a geographic area. Although theoretically, all or part, of an incumbent LEC's network can be replicated at some cost, as a practical matter, replication of elements in a ubiquitous manner may impair a requesting carrier's ability to compete vis-a-vis the incumbent. If the competitive LEC must deploy multiple facilities in order to be able to bring competition to a broad base of customers within a geographic area, the costs and delays associated with deploying facilities will likely be magnified, and could "materially diminish" that competitor's ability to provide the services that it seeks to offer.

26. We find that the language of section 251(d)(2) and the Supreme Court decision suggest that we should consider, in addition to the "necessary" and "impair" standards, the overall goals of the 1996 Act. Section 251(d)(2) states that the Commission shall "consider, at a *minimum*," the

"necessary" and "impair" standards, thus leaving the Commission free to consider other relevant factors.[35] In addition, the Supreme Court decision requires us to apply a limiting standard "rationally related to the goals of the Act." Moreover, as a policy matter, we believe that we may consider additional factors to ensure that the unbundling requirements promote the goals of the Act.

27. Accordingly, we may consider, in addition to the "necessary" and "impair" standards, whether the unbundling obligations we adopt are likely to: (1) encourage competitive LECs to rapidly enter the local market and serve the greatest number of consumers; (2) advance the development of facilities-based competition by competitive LECs, and encourage investment and innovation in new technologies and new services by both incumbent and competitive LECs; (3) reduce regulation of unbundled network elements as alternatives to the incumbent LECs' network elements become available in the future, (4) provide certainty in the marketplace that will allow new entrants and fledgling competitors to develop national and regional business plans and bring the benefits of competition to the greatest number of consumers; and (5) be administratively practical to apply. We conclude that these important policy goals can only be furthered by adoption of a national list of unbundled elements that takes into consideration, where appropriate, discrete geographic and product market variations that create exceptions to the incumbent LECs' general duty to unbundle the elements on the list.[36]

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[35] 47 U.S.C. § 251(d)(2).

[36] *See infra* Section V(D).

28. We do not assign any particular weight to the factors we identify above. Rather, we consider the relationship among the various factors to determine whether an incumbent LEC's network element should be unbundled. Indeed, there may be circumstances in which there is significant evidence that competitors are impaired without unbundled access to a particular element, but requiring incumbent LECs to unbundle that element would be inconsistent with the goals of the Act.

B. The "Necessary" and "Impair" Standards of Section 251(d)(2)

1. Application of the "necessary" and "impair" standards to proprietary and non-proprietary elements under Section 251(d)(2)

a. Background

29. In the *Local Competition First Report and Order*, the Commission concluded that section 251(d)(2) establishes separate standards that apply to proprietary and non-proprietary network elements. Specifically, the Commission determined that the "necessary" standard of section 251(d)(2)(A) applies to proprietary elements, and that the "impair" standard in section 251(d)(2)(B) applies to non-proprietary elements.[37] In the *Notice*, we sought comment on this interpretation of section 251(d)(2). In particular, we asked parties to comment on the difference between the "necessary" and "impair" standards. Noting that the Act employs two different terms, we asked if the Commission

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[37] *Local Competition First Report and Order*, 11 FCC Rcd at 15641-43, paras. 283-85.

must apply different criteria to determine whether a network element meets these standards.[38]

30. Only a couple of commenters dispute the Commission's previous decision to apply the "necessary" standard to proprietary elements and the "impair" standard to non-proprietary elements.[39] In particular, Sprint argues that the "necessary" and "impair" standards apply only to proprietary elements and thus, all non-proprietary elements must be unbundled.[40]

b. Discussion

31. We find no reason to change our framework for analyzing network elements under section 251(d)(2). In subpart (A) of section 251(d)(2), "necessary' modifies elements that are "proprietary in nature" while in subpart (B), "impair" modifies all other network elements. We agree with the majority of commenters that the "necessary" standard of section 251(d)(2)(A) is a higher standard that applies to proprietary network elements or to proprietary functions

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[38]*Notice* at para. 18.

[39]Rhythms Comments at 5-6; Sprint Comments at 9-12.

[40]Sprint Comments at 11-12. *See also* Letter from Kathy D. Smith, Acting Chief Counsel, National Telecommunications and Information Administration ("NTIA"), to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98, Attachment at 21 (filed Aug. 2, 1999) ("NTIA Comments") ("NTIA agrees with Sprint that one reasonable construction of the statutory language is that the 'necessary' and 'impair' standards were meant to apply only to proprietary network elements. We nonetheless recognize that the Commission adopted (and the reviewing court implicitly accepted) a different construction of the statute in the Local Competition Report, and that there are legitimate reasons why the Commission would be reluctant to reject that construction now.") (citation omitted).

within an element.[41] We believe that our conclusion that section 251(d)(2) establishes a higher standard for proprietary network elements than for non-proprietary elements is consistent with both the language of the statute and the goals of the 1996 Act to encourage incumbent LECs and competitive LECs to innovate and invest in new technologies. Specifically, incumbent LECs will have an on-going incentive to innovate if we ensure that their investment in the proprietary portions of their network is protected. While competitive LECs will have access to the incumbent LEC's proprietary network elements where necessary, they will not have unlimited access to those elements. We believe that this balanced approach provides competitive LECs with an incentive to innovate and invest in new technologies that will differentiate their services from the incumbents' services. We note that applying the "necessary" standard to proprietary elements, and the "impair" standard to non-proprietary elements is also consistent with the Commission's previous

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[41] *See, e.g.*, Illinois Commission Comments at 5; Texas PUC Comments at 8; Ameritech Comments at 36-40; GTE Comments at 11-12; SBC Comments at 12-14 (These incumbent LECs agree that network elements with proprietary features must be evaluated under the "necessary" standard, but state that the "impair" standard applies to all network elements. As explained herein, we adopt two distinct limiting standards in order to give substance to Congress' use of the term "necessary."); ALTS Comments at 14-15; Cable & Wireless Comments at 16-17; Choice One Joint Comments at 11; CompTel Comments at 16-17; Corecomm Comments at 13-14;; Cox Comments at 19-20; e.spire Joint Comments at 5; Excel Comments at 4; MCI Comments at 20; NEXTLINK Comments at 9; Pilgrim Comments at 6-7; TRA Comments at 15. But see Sprint Comments at 9-13, Rhythms Comments at 5-6 (arguing that the "impair" standard applies to both proprietary and non- proprietary rate elements).

interpretation of this section that was implicitly adopted by the Supreme Court.[42]

2. Definition of "Proprietary in Nature"

a. Background

32. Section 251(d)(2)(A) states that "[i]n determining what network elements should be made available for purposes of subsection (c)(3), the Commission shall consider, at a minimum, whether . . . . access to such network elements as are proprietary in nature is necessary." In the *Local Competition First Report and Order*, the Commission referred to proprietary network elements as including, for example, "those elements with proprietary protocols or elements containing proprietary information." The Commission found in the *Local Competition First Report and Order* that for most network elements subject to the unbundling obligations of section 51.319, parties had not identified any proprietary concerns. For those network elements where parties did identify proprietary concerns, the Commission found that access to those network elements was "necessary."[43]

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[42]Referring to the Commission's decision to limit its section 251(d)(2) inquiry to the incumbent's own network, the Court stated that "that judgment allows entrants, rather than the Commission, to determine whether access to proprietary elements is necessary, and whether the failure to obtain access to nonproprietary elements would impair the ability to provide services." *Iowa Utils. Bd.*, 119 S. Ct. at 735 (emphasis added).

[43]*Local Competition First Report and Order*, 11 FCC Rcd at 15694, 15697, 15710, 15720, 15739, 15744-45, 15748, 15766, 15774, paras. 388, 393, 419, 446, 481, 490, 497, 521, 539, In this Order, certain parties stated that channel banks and remote terminal equipment used with unbundled loops are often proprietary, that vertical switching features are proprietary, and that there are proprietary interfaces associated with operations support systems. The Commission found that the proprietary concerns did not justify

33. In the *Notice,* we sought comment on whether we should consider network elements as non-proprietary if the interfaces, functions, features and capabilities of the elements sought by the requesting carrier are defined by recognized standard-setting bodies (*e.g.* ITU, ANSI, or IEEE), are defined by Bellcore requirements, or otherwise are widely available from vendors.[44] We further requested comment on whether the term "proprietary" should be limited to information, software, or technology that can be protected by patents, copyright or trade secret laws.[45] There is general agreement among the parties that the Commission should define proprietary, under section 251(d)(2)(A), consistent with intellectual property categories.[46] Several competitive LECs maintain that we must define the term "proprietary" narrowly so as not to create incentives for incumbent LECs to attempt to deny access to unbundled network elements on proprietary grounds.[47]

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denying requesting carriers access to these elements. Several parties also identified proprietary concerns regarding access to the service creation environment interface and service management system used in the incumbent LECs' advanced intelligent networks. The Commission concluded that access to advanced intelligent networks, including those elements that may be proprietary, was "necessary.").

[44]*Notice* at para. 15.

[45]*Id.*

[46]*See, e.g.*, Iowa Comments at 4; Allegiance Comments at 4-6; ALTS Comments at 16; Ameritech Comments at 40-45; MCI WorldCom Comments at 21-22; NorthPoint Comments at 4; SBC Comments at 11-12; Sprint Comments at 9-10; US WEST Comments at 25; Waller Creek Comments at 12.

[47]*See* Cable & Wireless Comments at 17-18; Choice One Joint Comments at 11- 12; CompTel Comments at 18; Corecomm Comments at 14-17; KMC Comments at 11.

b. Discussion

34. In this Order, we adopt a limited definition of the phrase "proprietary in nature" that tracks the intellectual property categories of patent, copyright, and trade secrets. The majority of parties addressing this issue support using intellectual property law as a basis for defining "proprietary in nature."[48] We agree, and find that the intellectual property laws governing patent, copyright and trade secrets find a common purpose in Congress' intention to protect proprietary interests under section 251(d)(2). The intellectual property laws are designed to protect the incentives of authors and inventors to innovate.[49] Similarly, Congress recognized that an incumbent LEC's incentive to innovate could be adversely affected by requiring incumbent LECs to unbundle proprietary portions of network elements to requesting carrier-competitors. Congress therefore required the Commission to consider whether unbundling in such instances is "necessary."[50]

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[48]*See* Ameritech Comments at 42; ALTS Comments at 16; CompTel Comments at 19; GSA Comments at 8; RCN Comments at 10; SBC Comments at 12-15.

[49]*See* Feist Publications v. Rural Telephone Service Company, Inc., 499 U.S. 340, 348 (1991) (arguing that the primary objective of copyright is to compensate authors and "advance the progress of science and art.").

[50]Implementation of the Telecommunications Act of 1996: Telecommunications Carriers' Use of Customer Proprietary Network Information and Other Customer Information and Implementation of the Non-Accounting Safeguards of Sections 271 and 272 of the Communications Act of 1934, as amended, CC Docket Nos. 96-115 and 96-149, Second Report and Order and Further *Notice* of Proposed Rulemaking, 13 FCC Rcd 8061 (1998) (CPNI Order), on recon. FCC 99-223 (rel. Sept. 3., 1999), vacated sub nom. US West v. FCC, File No. 98-9518 (10th Cir., Aug. 18, 1999).

35. We find that if an incumbent LEC can demonstrate that it has invested resources (time, material, or personnel) to develop proprietary information or network elements that are protected by patent, copyright, or trade secret law, the product of such an investment is "proprietary in nature" within the meaning of section 251(d)(2)(A). This definition is consistent with the 1996 Act's policy of preserving the incumbent LECs' innovation incentives. It is also consistent with the Commission's conclusion, in the *Local Competition First Report and Order*, that in some instances it will be "necessary" for new entrants to obtain access to proprietary elements.[51] Finally, our decision to define interests that are "proprietary in nature" along established intellectual property categories is consistent with the Department of Justice and Federal Trade Commission *Guidelines for the Licensing of Intellectual Property*.[52]

36. Our definition excludes elements that are based on widely accepted industry documents or on standards commonly used by a standards-setting body (*e.g.* ITU, ANSI, IEEE) or by vendors. There are few innovation incentives associated with elements that are based on well-recognized standards that are widely available in the market, and we therefore are not required to scrutinize such elements under the higher "necessary" standard.

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[51] *Local Competition First Report and Order*, 11 FCC Rcd at 15641, para. 282.

[52] U.S. Department of Justice and Federal Trade Commission, Antitrust Guidelines for the Licensing of Intellectual Property (issued Apr. 6, 1995). The Guidelines are limited to patents, copyrights and trade secrets and, like the instant rulemaking, address the potential anticompetitive effects that may accrue to holders of patents, copyrights or trade secrets.

37. Section 251(d)(2) directs the Commission to "consider, at a minimum" whether access to proprietary elements is necessary.[53] As discussed below, this discretionary language permits us to consider other factors, in addition to the "necessary" standard, in making our unbundling determination. We find that there are several circumstances which, if they exist with regard to information or functionalities that the incumbent LEC claims are proprietary, will permit us to order unbundling of the proprietary information or functionalities even if unbundled access to the element is not strictly "necessary," as long as the "impair" standard is met. The first circumstance is where an incumbent LEC, for the primary purpose of causing a particular network to be evaluated under the stricter "necessary" standard in order to avoid its unbundling obligation, implements only a minor modification to the network element to make the element "proprietary in nature."[54] Denying a requesting carrier access to the element in this circumstance would not encourage innovation and investment by the incumbent LEC, which is one of the goals of the 1996 Act,[55] and would reduce consumer benefits by failing to facilitate rapid deployment of competitive services. The second circumstance is where an incumbent LEC cannot

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[53]47 U.S.C. § 251(d)(2).

[54]Some commenters have expressed concern that the definition of "proprietary in nature" should not provide a vehicle for incumbent LECs to make minor modifications to network technology to claim that the element must then be analyzed under the more restrictive "necessary" standard. *See* Cable & Wireless Comments at 17-18; GSA Comments at 8.

[55]Joint Explanatory Statement at 1 (The 1996 Act provides for "a pro-competitive, de-regulatory national policy framework designed to accelerate rapidly private sector deployment of advanced telecommunications and information technologies and services to all Americans by opening all telecommunications markets to competition. . .").

demonstrate that the information or functionality that it claims is proprietary differentiates its services from its competitors' services, or is otherwise competitively significant.[56] Information or functionalities that do not distinguish an incumbent LEC's service from that of its competitors are unlikely to be the focus of an incumbent LEC's efforts to innovate, and therefore do not require the high level of protection normally afforded to proprietary elements under the "necessary" standard. The third circumstance is where we find that lack of access to the proprietary element would jeopardize the goal of the 1996 Act to bring rapid competition to the greatest number of customers.[57] In such a circumstance, we may find that the incumbent LEC's asserted proprietary interest is outweighed by the benefits of facilitating more rapid deployment of competition for the greatest number of consumers. Given the significance of the incumbent LECs' proprietary interests, and our commitment to do nothing to discourage innovation and investment by all carriers, we do not envision, outside of these limited circumstances, unbundling a proprietary network element unless the "necessary" standard is satisfied. Moreover, we cannot imagine a situation where we would order unbundling of a proprietary element unless the "impair" standard has been met.

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[56]Significant differences in the incumbent LEC's service may be derived from characteristics of the service that better satisfy consumer preferences in terms of price, quality or features that are unavailable elsewhere. *See* Lancaster, Allocation and Distribution Theory: Technological Innovation and Progress, 56 Amer. Econ. Rev. : Papers & Proc. 14, 20-22 (1966). *See* generally A New Approach to Consumer Theory, 74 J. Pol. Econ. 132 (1966); Tirole, The Theory of Industrial Organization 99 (1988) (discussing Lancaster approach to product characteristics).

[57]*See* Joint Explanatory Statement at 1.

38. We agree with those commenters that argue that "proprietary in nature" applies only to the proprietary interests of the incumbent LEC and not to proprietary interests of third parties.[58] Limiting the definition of "proprietary" to interests held by the incumbent LEC is consistent with section 251(d)(2)(A)'s goal of preserving the incumbent LECs' incentives to innovate. Moreover, sections 251(c) and 251(d)(2), by their terms, apply only to the proprietary interests of those parties subject to the Act's unbundling obligations -- incumbent LECs. Thus, section 251(d)(2) only indirectly affects, if at all, the innovation incentives of third parties.[59]

39. Finally, we reject CompTel's argument that we should limit the application of proprietary network elements to those circumstances in which the incumbent LEC "discloses" proprietary information.[60] CompTel argues that if unbundling merely provides a requesting carrier with the "use" of a proprietary methodology, but does not "disclose" or access the proprietary information itself, the element is not

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[58]ALTS Comments at 17-18; Qwest Comments at 37. The Commission is currently considering the related question of third-party proprietary interests in a separate proceeding. *See* Petition of MCI for Declaratory Ruling, CC Docket No. 96-98, File No. CCBPol. 97-4 (March 14, 1997) (MCI Petition).

[59]Third-party innovation investment incentives are unlikely to be adversely affected by incumbent LEC sharing of proprietary information because third parties recover their innovation investments through fees paid to them by the incumbent LEC. Other third party issues are addressed in the pending MCI Petition.

[60]CompTel Comments at 19. *See also* RCN Comments at 10.

proprietary.[61] We find that the "use" or "disclosure" rationale does not promote the goal of the Act to encourage investment and innovation, and thus is at odds with our decision to define "proprietary" along intellectual property categories.

40. Pursuant to patent law, patent holders trade monopoly rights in their inventions in exchange for a requirement that they disclose the technical details underlying the patent. Patent holders thus recover their investments by obtaining a monopoly on the "use" of their protected intellectual property. We agree with Ameritech that limiting the definition of "proprietary" to requests that would reveal proprietary information would turn intellectual property law and incentives to innovate on their head; "instead of granting exclusivity in exchange for disclosure, it would withhold exclusivity unless needed to avoid disclosure."[62] Similarly, under copyright laws, an illegal copy or "use" of a protected work can damage an author's incentive to produce the work.[63] We note, however, that the disclosure of sensitive customer

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[61]CompTel Comments at 19. *See also* ALTS Comments at 16. The Commission concluded in the *Local Competition First Report and Order* that concerns about the proprietary nature of a network element would arise only if the proprietary information would be revealed. Specifically, it concluded that loops are, in general, not proprietary in nature because parties did not contend that proprietary information associated with certain loop equipment would be revealed if loops using such equipment were unbundled. *Local Competition First Report and Order*, 11 FCC Rcd at 15694, para. 388.

[62]Ameritech Comments at 44.

[63]Under CompTel's proposal (CompTel Comments at 19), the Commission would be required to find that Ameritech's incentive to create proprietary functionalities like Privacy Manager would not be adversely affected even though Ameritech would be subject to forced sharing of Privacy Manager, and requesting carrier customers could obtain the benefits of Privacy Manager without appropriating the underlying software.

information contained in unbundled network element must be consistent with the requirements of section 222.

3. The "Necessary" Standard of Section 251(d)(2)(A)

a. Background

41. In the *Local Competition First Report and Order*, the Commission defined a "necessary" network element as one that is a "prerequisite" to competition. The Commission stated that "in some instances it will be 'necessary' for requesting carriers to obtain access to proprietary elements (*e.g.*, elements with proprietary protocols or elements containing proprietary information) because without such elements, the ability of requesting carriers to compete would be significantly impaired or thwarted."[64] It also acknowledged that prohibiting incumbents from refusing access to proprietary elements could reduce their incentives to offer innovative services.[65] The Commission did not identify any proprietary elements subject to unbundling in the *Local Competition First Report and Order*, except that it acknowledged the claims of several parties that access to the incumbent LECs' advanced intelligent network (AIN) may raise proprietary concerns. It nevertheless concluded that access to AIN is "necessary" within the meaning of section 251(d)(2)(A).[66]

42. In the *Notice*, the Commission sought comment on the definition of "necessary" for the purpose of determining

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[64] *Local Competition First Report and Order*, 11 FCC Rcd at 15641, para. 282.

[65] *Id.*

[66] *Id.* at 15748, para. 497.

proprietary network elements that must be unbundled pursuant to the requirements of section 251(d)(2)(A), as well as on what factors or criteria the Commission should apply in determining whether access to a network element is "necessary."[67]

43. Several competitive LECs assert that in determining whether unbundling of a proprietary network element is "necessary," the Commission must evaluate whether the requesting carrier can obtain comparable functionality from an alternative network element. They maintain that if the requesting carrier would experience a material loss in functionality without the network element that that the incumbent LEC claims is proprietary, then the incumbent LEC's network element is "necessary" within the meaning of section 251(d)(2)(A).[68] The incumbent LECs assert generally that both the "necessary" and "impair" standards require an analysis of whether lack of access to their networks elements, taking into consideration alternatives outside the incumbent's network, would deny an efficient competitor a meaningful opportunity to compete. These commenters argue that the "necessary" standard requires the Commission to accept a higher degree of proof that alternatives to the element are not available.[69]

b. Discussion

44. We conclude that a proprietary network element is "necessary" within the meaning of section 251(d)(2)(A) if,

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[67] *Notice* at paras. 16, 20.

[68] Cable & Wireless Comments at 9; Net2000 Comments at 9-10. *See also* NEXTLINK Comments at 11.

[69] *See, e.g.*, Ameritech Comments at 37-40; SBC Comments at 14; US West Comments at 23-26.

taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third- party supplier, lack of access to that element would, as a practical, economic, and operational matter, *preclude* a requesting carrier from providing the services it seeks to offer. We agree with NTIA that the proper focus of the "necessary" standard is whether access to the incumbent LEC's proprietary element is absolutely required for the competitor's provision of its intended service.[70] We find, therefore, that an incumbent LEC must provide access to a proprietary element, if withholding access to the element would prevent a competitor from providing the service it seeks to offer. In other words, we conclude that an incumbent LEC's proprietary network element would only be available to a competitor if the competitor is unable to offer service, without access to the element, because no practical, economic, and operational alternative is available, either by self-provisioning or from other sources.

45. The standard we assign to the term "necessary," as used in section 251(d)(2)(A), is consistent with the Supreme Court's decision because it considers alternatives available outside the incumbent's network and gives substance to the meaning of "necessary." Moreover, insofar as the standard focuses on the competitor's ability to furnish a desired service, and not merely on whether profits are increased by using the incumbent's network, the standard is also consistent with the Court's instruction that we must "apply some limiting standard, rationally related to the goals of the Act."[71]

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[70]NTIA Comments at 27.

[71]*Iowa Utils. Bd.*, 119 S. Ct. at 735-36.

46. This "necessary" standard differs from the "impair" standard we adopt below because a "necessary" element would, if withheld, *prevent* a carrier from offering service, while an element subject to the "impair" standard would, if withheld, merely limit a carrier's ability to provide the services it seeks to offer.[72] We therefore disagree with the standards proposed by ALTS and other competitive LECs that access to a proprietary element is "necessary" if the entrant would experience a material loss in functionality without access to the element.[73] A standard based on a test of "material loss" in functionality requires only that the competitive LEC's ability to compete be materially affected in some way, as opposed to precluded, and ignores the higher degree of protection normally afforded intellectual property rights.[74] The incumbent LECs argue that the "necessary" standard is a higher standard that is intended to preserve their incentive to invest in proprietary protocols,[75] and that access to a proprietary element is "necessary" only if lack of access to that element would deny an efficient competitor a meaningful opportunity to compete.[76] We agree with the incumbent LECs' concerns regarding the preservation of their investment incentives. We believe that our standard, by requiring that a requesting carrier be precluded as a practical, economic, and operational matter from providing service

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[72]*See* Vermont PSB Comments at 10-11; CPI Comments at 7-9.

[73]ALTS Comments at 19. *See also* Cable & Wireless Comments at 3-4; MCI WorldCom Comments at 18-19; Net2000 Comments at 9; NEXTLINK Comments at 10-12.

[74]*See supra* Section IV(B)(2).

[75]*See, e.g.*, GTE Comments at 26; SBC Comments at 14.

[76]*See, e.g.*, Ameritech Comments at 37-40; SBC Comments at 14; US West Comments at 23-26.

without access to the proprietary information, sufficiently protects the incumbents' proprietary property from nonessential access by competitors.

47. We reject, however, the incumbent LECs' proposal to base the "necessary" standard on the requirements of an efficient competitor. As we explain below in our discussion of the "impair" standard, we do not affirmatively base our unbundling standard on an efficient competitor because we conclude that the marketplace is better able than regulators to distinguish efficient competitors from inefficient competitors.[77] We also note that GTE and SBC state that few, if any, network elements are entirely proprietary in nature.[78] Other commenters point out that most network equipment and services are non- proprietary because of the need for interoperability of networks.[79] We therefore expect that the "necessary" standard will be invoked only when there is a serious question of whether access to the element will infringe upon the incumbent's intellectual property.

4. The "Impair" Standard of Section 251(d)(2)(b)

a. Background

48. In the *Local Competition First Report and Order*, the Commission adopted a dictionary definition of the term "impair" that means "to make or cause to become worse; diminish in value." The Commission stated that "generally . . . an entrant's ability to offer a telecommunications service is

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[77] *See infra* Section IV(B)(4).

[78] SBC Comments at 12; GTE Comments at 26.

[79] *See, e.g.*, Choice One Joint Comments at 11-12; KMC Comments at 11.

'diminished in value' if the quality of the service the entrant can offer, absent access to the requested element, declines and/or the cost of providing the service rises."[80] In particular, the Commission interpreted the "impair" standard as requiring an evaluation of whether the failure of an incumbent to provide access to a network element would decrease the quality, or increase the financial or administrative cost of the service a requesting carrier seeks to offer.[81]

49. In the *Notice*, we sought comment on the meaning of the term "impair," and asked whether we should adopt a standard under which we examine whether the new entrant's ability to offer a telecommunications service in a competitive manner is materially diminished in value.[82] We also sought comment on the factors or criteria we should adopt to determine whether failure to provide access to the incumbent LEC's network elements would impair an entrant's ability to provide service within the meaning of section 251(d)(2).[83]

50. The incumbent LECs argue generally that a requesting carrier is impaired if, after taking into account the availability of elements from alternative sources outside the incumbent's network, lack of access to the requested element would deny a competitor a meaningful opportunity to compete. This standard is similar to the standard the incumbent LECs propose for the "necessary" standard under

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[80] *Local Competition First Report and Order*, 11 FCC Rcd at 15643, para. 285 (citing Random House College Dictionary 665 (rev. ed. 1984)).

[81] *Local Competition First Report and Order*, 11 FCC Rcd at 15643, para. 285.

[82] *Notice* at para. 17.

[83] *Id.* at para. 20.

section 251(d)(2)(A).[84] GTE argues that failure to provide access to a network element would impair a requesting carrier's ability to provide service only where the element is essential to competition, and there is convincing evidence that the carrier cannot compete effectively using an alternative network element.[85] Several incumbent also maintain that we must consider all available alternatives, including those available from other suppliers and through self-provisioning by the requesting carrier.[86] The Texas PUC proposes that a competitor is impaired if, looking at the marketplace as a whole, lack of access to the incumbent's network element causes it to incur an increase in cost such that the competitor does not have a meaningful opportunity to compete.[87] The competitive LECs and the Illinois Commerce Commission propose a standard by which a carrier would be impaired if, after taking into account the availability of elements from alternative sources outside the incumbent's network, lack of access to the requested element would materially diminish the requesting carrier's ability to provide service.[88] The difference between the standard proposed by the competitive LECs and the standard proposed by the incumbent LECs is essentially the difference between whether lack of access to an unbundled network element

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[84] *See, e.g.*, Bell Atlantic Comments at 7-9; BellSouth Comments at 21-22; SBC Comments at 5, 14; US West Comments at 10-11.

[85] GTE Comments at 14-20.

[86] *See, e.g.*, Ameritech Joint Reply Comments at 16-17.

[87] Texas PUC Comments at 7-8.

[88] *See, e.g.*, Ad Hoc Comments at 4-5; Cable & Wireless Comments at 10-14; Choice One Joint Comments at 6-7; Excel Comments at 6-8; MCI WorldCom Comments at 15-18; Northpoint Comments at 6-10; RCN Comments at 12; TRA Comments at 19-23; Illinois Commission Comments at 6-7.

"denies" or "materially diminishes" the ability of a competitor to provide the services it seeks to offer. Many competitive LECs also assert that the incumbent LECs' failure to provide access to an element would impair a requesting carrier's ability to provide service where there is no competitive wholesale market for the requested element.[89]

b. Discussion

(i) The "Impair" analysis

51. We conclude that the failure to provide access to a network element would "impair" the ability of a requesting carrier to provide the services it seeks to offer if, taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that element materially diminishes a requesting carrier's ability to provide the services it seeks to offer. We find that a materiality component, although it cannot be quantified precisely, requires that there be substantive differences between the alternative outside the incumbent LEC's network and the incumbent LEC's network element that, collectively, "impair" a competitive LEC's ability to provide service within the meaning of section 251(d)(2).[90] We therefore agree with the Illinois Commerce Commission that where a competing LEC's "ability to offer a telecommunications service in a competitive manner is materially diminished in

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[89] *See, e.g.*, Allegiance Comments at 8-11; Cable & Wireless Comments at 6- 10; Covad Comments at 14-18; Excel Comments at 8-10; NorthPoint Comments at 6- 10.

[90] *See* Cable & Wireless Comments at 12-14.

value without access to that element," the competitor's ability to provide its desired services would be impaired.[91]

52. We believe that a standard that includes a "materiality" component gives substance to the "impair" standard of section 251(d)(2)(B), and responds to the Supreme Court's concern that we "apply some limiting standard, rationally related to the goals of the Act."[92] A standard that includes a materiality component preserves requesting carriers' ability to provide service using unbundled elements, as contemplated by the Act, and encourages them to invest and innovate. As envisioned by Congress, requesting carriers may need each of the three separate means of providing service (resale of the incumbent LEC's service, use of unbundled incumbent LEC network elements, deployment of self-provisioned facilities), or various combinations of these means, in order to serve different customer classes in different areas. The purchase of unbundled network elements from the incumbent should serve as a transitional strategy that will provide requesting carriers with the ability to gain a sufficient volume of business to justify economical deployment of their own facilities.

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[91]Illinois Commission Comments at 6-7. Illinois illustrates the standard by describing the circumstances under which a carrier would be impaired. According to the Illinois Commerce Commission, self-provisioning a loop would impair a requesting carrier's to compete because it would incur material up-front installation costs and delays, and would have to acquire access to rights-of- way and undertake other labor-intensive activities to replicate the incumbent's loop facilities. *Id.*

[92]We note that courts have applied the standard dictionary definition of "impair" as "[t]o weaken, to make worse, to lessen in power, diminish, or relax, or otherwise affect in an injurious manner." *See, e.g.*, Humana Inc. v. Forsyth, 119 S. Ct. 710, 717 (1999).

53. Although we recognize that the existence of some significant level of competitive LEC facilities deployment is probative of whether competitive LECs are impaired from providing service within the meaning of section 251(d)(2), we decline to adopt the incumbent LECs' position that the presence of a single competitor providing service, without using the incumbent's unbundled network elements, is dispositive evidence that a competitor's ability to provide service generally would not be impaired without access to such elements.[93] According to Bell Atlantic, if an efficient competitor can and does provide service without access to the incumbent's network element, it is irrelevant whether a less efficient competitor might claim that it would be impaired without access to the element.[94] We find that the "efficiency" argument raised by Bell Atlantic and other incumbent LECs is more relevant to the length of time a competitor has been in business than to the efficiencies created by the competitor's inherent capabilities or cost structure. More importantly, however, we agree with MCI WorldCom that the Act is not calibrated to the performance of the company whose business plan allows it to rely the least on the incumbent LEC's network elements.[95] The provisions of the 1996 Act do not contemplate that either the incumbent LEC or the regulator will determine whether a particular carrier is "efficient." Rather, the Act is designed to create a regulatory framework that requires incumbent LECs to make network elements subject to the unbundling obligations of section 251 available to all requesting carriers, subject to the requirements of

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[93]Bell Atlantic Comments at 14; US West Comments at 12.

[94]Bell Atlantic Comments at 9.

[95]MCI WorldCom Reply Comments at 23-24.

section 251(d)(2), and allows the marketplace to determine ultimately which competitors thrive or survive.[96]

54. Moreover, the ability of one or more competitors to serve certain customers in a particular market is not dispositive of whether competitive LECs without unbundled access to the incumbent LEC's facilities are able to compete for other customers in the same market or for customers in other markets. In some markets, particularly those markets serving high-volume business customers, it may be practical and economical for competitive LECs to compete using self-provisioned facilities. In other markets, however, typically those markets consisting of residential consumers and small businesses, the delay and costs associated with self-provisioning a network element will preclude those same competitors, or others, from assuming the risk of entry, unless they can purchase unbundled elements from the incumbent.[97] We agree with the commenters that point out that we cannot evaluate the needs of every potential carrier seeking access to each network element on a case-by-case basis.[98] We

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[96]*See* NTIA Comments at 5-6, n.16 ("The obvious conclusion [of the market opening provisions of the 1996 Act] is that Congress sought to foster entry by multiple firms and then let competitive market processes distinguish the 'efficient' providers from the 'inefficient' ones.").

[97]*See, e.g.*, Qwest Comments at 18 ("The fact that some CLECs are engaging in self-supply of network elements also is not evidence of lack of impairment. It is evidence only that for some carriers, in some instances, for some customers, during particular time periods, in particular geographic areas, they are able to cost-justify self-supply."); AT&T Reply Comments at 120, 123-24 and Tab B, Aff. of R. Glenn Hubbard/William H. Lehr/Janusz A. Ordover/Robert D. Willig, at paras. 36-38; MCI WorldCom Reply Comments at 36-37.

[98]*See* Ameritech Comments at 36; Choice One Joint Comments at 12-13; CPI Comments at 13; KMC omments at 7; MCI WorldCom Comments, Tab 2, Decl. of John E. Kwoka, at para. 38; Prism Comments at 9-10.

conclude, however, that we should not adopt rules that would deny access to network elements to all competitors based on the presence of a single competitor that has been able to enter without the use of a particular unbundled network element from the incumbent LEC.

55. We believe that Congress rejected implicitly the argument that the presence of a single competitor, alone, should be dispositive of whether a competitive LEC would be "impaired" within the meaning of section 251(d)(2). For example, although Congress fully expected cable companies to enter the local exchange market using their own facilities, including self-provisioned loops, Congress still contemplated that incumbent LECs would be required to offer unbundled loops to requesting carriers.[99] A standard that would be satisfied by the existence of a single competitive LEC using a non-incumbent LEC element to serve a specific market, without reference to whether competitive LECs are "impaired" under section 251(d)(2), would be inconsistent with the Act's goal of creating robust competition in telecommunications. In particular, such a standard would not create competition among multiple providers of local service that would drive down prices to competitive levels. Indeed, such a standard would more likely create stagnant duopolies comprised of the incumbent LEC and the first new entrant in a particular market. An absence of multiple providers serving various markets would significantly limit the benefits of competition that would otherwise flow to consumers.

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[99]Joint Explanatory Statement at 148 (recognizing potential of cable companies to become facilities-based competitors within the meaning of section 271(c)(1)(A), and stating that competitors will still need access to the incumbent LECs' network.).

56. On the other hand, we are not persuaded by arguments of competitive LECs that the "impair" standard is met only once it is determined that a wholesale market exists for a particular element.[100] We agree with the incumbent LECs that that basing the "impair" standard on the existence of a wholesale market does not take into consideration self-provisioning as a viable substitute to the incumbent LECs' network elements.[101] The Supreme Court decision in *Iowa Utils. Bd.* expressly faulted the Commission's analysis in the *Local Competition First Report and Order* for not comparing use of the incumbent LEC's element with "self-provision" or with "purchas[ed elements] from another provider."[102] We find that, in order to thoroughly evaluate the availability of alternative elements outside of the incumbent LEC's network, we must consider elements available from all sources, including those elements available from third-party suppliers and through self-provisioning.[103]

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[100]*See, e.g.*, Allegiance Comments at 8-11; Cable & Wireless Comments at 6- 10; Covad Comments at 14-18; Excel Comments at 8-10; NorthPoint Comments at 6- 10.

[101]Ameritech Joint Reply Comments at 17.

[102]*Iowa Utils. Bd.*, 119 S. Ct. at 735.

[103]ALTS points out that although new entrants always have the potential of offering service using self-provisioned elements, the Act contemplates more immediate entry by competitors through the use of resale and unbundled network elements. ALTS Reply Comments at 19-20. The unbundling standard that we adopt does not allow for the incumbent's unbundling obligation to be eliminated based merely upon a showing that a requesting carrier has the potential to self- provision or acquire facilities at some indefinite time in the future. This would be inconsistent, as ALTS suggests, with the Act's goal to encourage for all consumers rapid deployment of competitive alternatives. The unbundling analysis that we undertake considers instead the current facts in the marketplace

57. Several of the incumbent LECs argue that our standard should be based on an analysis similar to the one used by courts in determining whether, according to the essential facilities doctrine, a firm must share its facilities with competitors.[104] We disagree. Although we acknowledge that the Supreme Court referred to the possibility of adopting a limiting standard based on the essential facilities doctrine,[105] we find nothing in the legislative history or statutory language of the 1996 Act, or in the Court's decision that requires us to apply that doctrine in determining which network elements the incumbent LECs must unbundle. Indeed, the Court expressly declined to decide, as a matter of law, whether the essential facilities doctrine is mandated by section 251(d).[106] Further, we believe that the standard under section 251(d) better reflects the overall goals of the Act. Accordingly, as discussed more fully below, we describe several factors that should be considered in determining whether a particular network element must be unbundled pursuant to section 251(c)(3).[107]

58. As an initial matter, the legislative history and statutory language of the Act indicate that Congress did not intend to codify the essential facilities doctrine when it enacted section 251(d)(2). Specifically, the legislative history indicates that Congress was aware of antitrust principles and the essential facilities doctrine, in particular, when it considered the 1996 Act. At least since 1991, the Senate had considered telecommunications legislation that expressly

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[104] *See, e.g.*, Ameritech Comments at 28-32; GTE Comments at 14-20; US West Comments at 6-7.

[105] *Iowa Utils. Bd.*, 119 S. Ct. at 743.

[106] *Id.*

[107] *See infra* Sections (IV)(4)(b)(ii) and (IV)(C).

referred to "essential facilities."[108] Yet, in spite of its awareness of this doctrine, Congress did not adopt an essential facilities test for unbundling of network elements. Congress chose, instead, to adopt unbundling requirements that are based upon the "necessary" and "impair" standards of section 251(d)(2). Moreover, section 601(b)(1) of the Act expressly preserves the existing antitrust laws, indicating that Congress intended for the Act to augment, not replace, traditional antitrust rules.[109]

59. The essential facilities doctrine is an antitrust doctrine that imposes an obligation on a firm that controls facilities that are essential for the existence of competition between itself and a competitor to share such facilities on non-discriminatory terms.[110] The doctrine creates a narrow exception to the general antitrust presumption that a single firm may decline to deal with another firm.[111] Under the essential facilities doctrine, a court may require a firm possessing monopoly control over an essential input to deal with a competitor, if it is shown that the monopolist is misusing control of an essential facility to foreclose competition in a downstream market.[112]

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[108]MCI WorldCom Comments at 35 (citing 137 Cong. Rec. S7054, S7058 (daily ed. June 5, 1991) (reading S. 1200, 102d Cong. § 202 1991)).

[109]47 U.S.C. § 601(b)(1).

[110]*See* MCI WorldCom Comments at 28-29 (citing Section 2 of the Sherman Act, 15 U.S.C. § 2; MCI Telecommunications Corp. v. American Tel. & Tel. Co., 708 F.2d 1081, 1132-33 (7th Cir. 1983)) (MCI v. AT&T).

[111]*See* Phillip Areeda, Essential Facilities: An Epithet in Need of Limiting Principles, 58 ANTITRUST L.J. 841, 841 (1989); Olympia Equipment Leasing Co. v. Western Union Telegraph Co., 797 F.2d 370, 376, reh. den. 802 F.2d 217 (7th Cir. 1986).

[112]*See* MCI v. AT&T, 708 F.2d at 1132-33.

60. Although we find that the essential facilities doctrine promotes the same economic and policy goals embodied in the 1996 Act, we find it to be of limited assistance in our analysis of the unbundling obligations of the Act because, as NTIA explains, the Act plainly imposes on incumbent LECs a broader duty to deal with competitors than does the essential facilities doctrine.[113] In particular, the essential facilities doctrine differs from the analysis the Commission must undertake under section 251(d)(2) because Congress has already created an affirmative obligation for incumbent LECs to make their facilities available to competitors.[114] Specifically, section 251(c)(3) imposes on incumbent LECs a general obligation to provide access on an unbundled basis to any network elements that the Commission identifies under section 251(d)(2). This obligation is not limited to situations in which the incumbent is misusing control of a unique facility to foreclose competition in a downstream market. Rather, section 251(d)(2) requires incumbents to share their facilities if competitors are merely "impaired" in their ability to provide services they seek to offer. In addition, sections 251(c)(3) and 251(d)(2) require incumbent LECs to make their facilities available at cost-based rates, whereas the essential facilities doctrine allows monopolists to continue charging monopoly rates for use of their facilities.[115]

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[113]NTIA Comments at 14-16.

[114]*See* NTIA Comments at 16 ("Indeed, to the extent that Congress considered the essential facilities doctrine at all, it concluded that (1) the ILECs' networks are essential facilities and (2) that alternative providers must have broad access to those facilities if there was to be local competition.") (emphasis in original).

[115]*See* Sprint Comments at 15-16.

61. It is particularly notable that although the essential facilities doctrine is referenced in several Supreme Court rulings, the Supreme Court has never explicitly adopted the doctrine.[116] Moreover, because antitrust jurisprudence has not clearly defined the contours of the essential facilities doctrine, the doctrine provides limited guidance in developing a limiting standard under section 251(d)(2). In order to establish liability under the essential facilities doctrine, a plaintiff must establish the existence of five elements: 1) a monopolist controls an essential facility; 2) the competitor is unable to practically or reasonably duplicate the essential facility; 3) the monopolist denies a competitor use of the facility; 4) the monopolist can feasibly provide the facility; and 5) there is no legitimate business justification for denying access to the facility the monopolist controls.[117] Although the second prong of this test resembles the inquiry the Commission must undertake to evaluate the availability of alternative elements outside of the incumbent LEC's network, it does not establish a standard by which the Commission can measure the extent to which the cost of duplicating the element is economically infeasible, which, as described below, is a significant part of the our unbundling analysis.

(ii) Factors for Determining Availability of Alternative Network Elements

62. In order to respond to the Supreme Court's decision, we consider whether a requesting carrier's ability to provide

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[116]Areeda, *supra* note 111, at 841 (Calling the essential facilities doctrine a "so-called" doctrine because "the cases support the doctrine only by implication and in a highly qualified way. . . . It is less a doctrine than an epithet, indicating some exception to the right to keep one's creation to oneself, but not telling us what those exceptions are.").

[117]MCI v. AT&T, 708 F.2d at 1132-33.

the services that it seeks to offer would be materially diminished if it were required to use an alternative element available outside the incumbent LEC's network. We agree with those parties that argue that we must consider the totality of the circumstances to determine whether an alternative to the incumbent LEC's network element is available in such a manner that a requesting carrier can realistically be expected to actually provide service using the alternative.[118] We therefore take into account alternatives that are available through both self- provisioning and from third-party suppliers,[119] and we consider the extent to which these alternatives are available as a practical, economic, and operational matter.

63. We are not persuaded by the incumbents' argument that we must look at each element in isolation to determine whether or not that element independently satisfies section 251(d)(2).[120] Such an analysis fails to reflect the manner in which carriers interconnect their networks, and ignores factors that would impair a requesting carrier's ability to actually provide service, which is the focus of section 251(d)(2)(B). Even if a particular element may be purchased

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[118]*See, e.g.*, McLeod Comments at 5 (stating that there are "multiple dimensions" associated with the question of the availability of a particular network element such as ubiquity, economies of scale and scope, constrained capital resources and lag times associated with new construction); RCN Comments at 12 (stating that the Commission should consider how the totality of the circumstances indicates that requiring unbundling of an element would promote the pro-competitive purpose of the 1996 Act).

[119]In this Order, when we refer to the availability to a requesting carrier of an element from a third-party supplier, we are referring to a supplier other than the incumbent LEC.

[120]SBC Comments at 9-11.

outside of the incumbent LEC's network at reasonable prices, other factors, including the costs and delays associated with collocation arrangements, as well as additional costs and operational impediments associated with the manual processes used to interconnect certain network elements, may make it impossible as a practical, economic, and operational matter for a competitor to provide services in the local market quickly and on a wide-spread basis.

64. We acknowledge that some of the factors we consider in our analysis may implicate other proceedings or provisions of the statute.[121] We therefore remain open to the possibility that issues that we address under our "impair" analysis, (*e.g.*, collocation), could be addressed in other contexts, such as in enforcement proceedings.

65. Although we recognize that the factors of cost, timeliness, quality, ubiquity, and operational factors are only some of the factors that may influence a carrier's decision to enter a particular market, we agree with the California PUC that these factors are relevant to an inquiry of whether alternative sources of network elements are reasonably available from other sources, and thus, in many cases, whether requesting carriers are able to actually provide

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[121] *See, e.g.*, Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, First Report and Order and Further *Notice* of Proposed Rulemaking, 14 FCC Rcd 4761 (1998) (Advanced Services First Report and Order and FNPRM); Performance Measurements and Reporting Requirements for OSS, Interconnection, and Operator Services and Directory Assistance, CC Docket No. 98-56, *Notice* of Proposed Rulemaking, 13 FCC Rcd 12817 (1998) (Performance Measurements *Notice*).

service using the alternative element.[122] We also agree with the commenters that point out that we cannot evaluate the needs of every potential entrant for every network element on a carrier-by-carrier, market-by-market, week-by-week (or other time period) basis.[123] We therefore will not analyze the availability of alternative elements, including those provided through self-provisioning, from the perspective of a carrier using any specific competitive strategy in a particular geographic market.

66. Although we find it reasonable to consider cost, time, quality, ubiquity, and other factors associated with self-provisioning or acquiring an element from a third-party provider, we do not base our decision on cost models or on the theoretical availability of alternatives from other sources. Rather, we find the marketplace to be the most persuasive evidence of the actual availability of alternatives as a practical, economic, and operational matter. As the Texas PUC stated, the Commission and the states should "base their decisions on marketplace information, while recognizing that minor increases in a competitor's costs must be weighed against other factors such as service quality, technological innovation, and the loss of efficiency in a rapidly changing marketplace."[124] Discerning the practical, economic, and operational viability of self-provisioning or obtaining

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[122]*See, e.g.*, California PUC Reply Comments at 3-8 (stating that the Commission should evaluate quality, reliability, geographic scope, quantity, time, cost and operational factors associated with using an alternative network element.).

[123]*See* Ameritech Comments at 36; Choice One Joint Comments at 12-13; CPI Comments at 13; KMC Comments at 7; MCI WorldCom Comments, Tab 2, Decl. of John E. Kwoka, at para. 38; Prism Comments at 9-10.

[124]Texas PUC Comments at 7-8.

alternative elements from third-party providers is technical, complex, and subject to considerable uncertainty. We believe, however, that an examination of the factors we have identified provides the Commission with the ability to identify, through the exercise of its administrative judgment, discernable material differences between using the incumbent's unbundled network elements and those available from other sources that ultimately will affect a requesting carrier's ability to provide the services it seeks to offer.

67. We assign little weight in our "impair" analysis to the ability of a requesting carrier to use the incumbent LECs' resold or retail tariffed services as alternatives to unbundled network elements. In the *Local Competition First Report and Order*, the Commission expressly rejected the incumbent LECs' argument that requesting carriers are not impaired in their ability to provide service if they can provide their proposed service by purchasing the service at wholesale rates from the incumbent LEC. As the Commission concluded in that Order, allowing incumbent LECs to deny access to unbundled elements solely, or primarily, on the grounds that an element is equivalent to a service available at resale would lead to impractical results; incumbent LECs could completely avoid section 251(c)(3)'s unbundling obligations by offering unbundled elements to end users as retail services.[125] In other

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[125] *Local Competition First Report and Order*, 11 FCC Rcd at 15643-44, paras. 286-87. The Eight Circuit agreed that while subsection 251(c)(4) does provide for the resale of telecommunications services, it does not establish resale as the exclusive means through which a competing carrier may gain access to such services. It consequently agreed with the Commission that such an interpretation would allow the incumbent LECs to evade a substantial portion of their unbundling obligation under section 251(c)(3). Specifically, the Eighth Circuit stated, in response to the incumbent LECs' argument that vertical switching features were services

words, denying access to unbundled elements on the grounds that an incumbent LEC offers an equivalent retail service could force requesting carriers to purchase, for example, an unbundled loop and switching out of an incumbent's retail tariff at a wholesale discount, subject to all of the associated tariff restrictions. US West maintains that it need not unbundle local transport because requesting carriers can purchase its tariffed special access services.[126] In light of the little weight we assign to the availability of resold services in our analysis, we reject US West's argument. This argument would foreclose competitive LECs from taking advantage of the distinct opportunity Congress gave them, through section 251(c)(3), to use unbundled network elements.[127]

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subject to resale and therefore need not be unbundled, that,

> Simply because these capabilities can be labeled as 'services' does not convince us that they were not intended to be unbundled as network elements. While subsection 251(c)(4) does provide for the resale of telecommunications services, it does not establish resale as the exclusive means through which a competing carrier may gain access to such services. We agree with the FCC that such an interpretation would allow the incumbent LECs to evade a substantial portion of their unbundling obligation under subsection 251(c)(3).

Iowa Utils. Bd. v. FCC, 120 F.3d at 809. The Supreme Court found that the statutory definition of "network element" does not include only the physical facilities used to provide local phone service, but also includes the features, functions and capabilities that are provided by these facilities, such as vertical switching features. *Iowa Utils. Bd.*, 119 S. Ct. at 734.

[126]Letter from Melissa Newman, Vice President - Federal Regulatory, US West, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98, at 1-2 (filed Aug. 18, 1999).

[127]*See* ALTS Comments at 23 (stating that the Commission should not consider the availability of resale because it would "eviscerate the 1996 Act's 'bright line' distinction between the resale and UNE methods of entry.").

68. As the Commission explained in the *Local Competition First Report and Order*, using unbundled network elements and resold services present different opportunities, risks, and costs, in connection with providing local telephone service. These differences influence the entry strategies of potential competitors.[128] The Commission stated that carriers using unbundled elements will have greater opportunities to offer services that are different from those services offered by the incumbents. More specifically, carriers reselling incumbent LEC services are limited to offering the same service an incumbent LEC offers at retail.[129] While competitive LECs using unbundled elements may have greater competitive opportunities than carriers offering services available for resale, they also face greater risks. A carrier purchasing unbundled elements must pay for the cost of the element, pursuant to terms and conditions agreed to in negotiations or ordered by states in arbitrations. Thus, the competitive LEC faces the risk that end-user customers will not demand a sufficient number of services to allow the competitive LEC to recoup the costs it incurs using the unbundled element; a carrier that resells the incumbent LEC's services does not face the same risk.[130] The 1996 Act grants competitive LECs the option of using either the incumbent LEC's unbundled network elements or resold services, thereby allowing the competitors to balance the risks and opportunities associated with each.

69. In addition, even if we agreed with US West that an incumbent LEC's retail tariff provided competitive LECs

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[128] *Local Competition First Report and Order*, 11 FCC Rcd at 15667, para. 331.

[129] *Id.* at 15667, para. 332.

[130] *Id.* at 15668, para. 334.

with a viable alternative to the incumbent LEC's unbundled network element, competitors would have no assurance that the incumbent LEC would not change the tariff in such a manner that the competitive LEC could no longer rely on it to provide the services it seeks to offer. Most services that competitive LECs purchase for resale are contained in state tariffs, and are subject to the states' tariff approval process. Relying on these state-approved tariffs would compromise our ability to determine which network elements must be unbundled pursuant to section 251(d)(2) because we would not be able to evaluate each incumbent LEC retail tariff as a possible alternative for every network element. In addition to being administratively unworkable for us to evaluate every state tariff filed by the incumbent LECs, relying on these tariffs as alternatives to the incumbent LECs' unbundled network elements would create inconsistent unbundling rules among the states, a result that, as we explain further below, would not promote the development of competition for all consumers.

70. Moreover, we do not find the Supreme Court's decision requiring us to consider the availability of elements outside the incumbent LECs' network to be at all inconsistent with our decision to consider alternatives available through self-provisioning or from third-party suppliers. The Supreme Court required us to compare the use of unbundled network elements with "self- provision, or with purchase from another provider."[131] If we were to construe the Supreme Court's opinion in the manner suggested by US West, we would have to consider whether an incumbent LEC's duty to unbundle an element would be limited by the existence of an alternative service that the incumbent LEC provides itself, whether or

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[131] *Iowa Utils. Bd.*, 119 S Ct. at 735 (emphasis added).

not there are other competitively-supplied alternatives. In other words, under US West's argument, the existence of its retail tariffs alone would be sufficient to eliminate its obligation to unbundle certain elements. The Supreme Court's opinion does not require us to ignore whether there are other non-incumbent LEC alternatives to the incumbent LEC's unbundled network elements, proposed by US West.

71. We believe that the "impair" standard we adopt in this Order will encourage the development of facilities-based competition. Specifically, as competitors acquire more customers, and the material differences in cost, time, quality, and operational impediments diminish, competitors will gradually reduce their reliance on the incumbent LECs' facilities. Competitors will also deploy more of their own facilities as it becomes practical to do so. As the material differences decrease, the Commission will be able to apply the same standard to remove elements from the national unbundling obligations.

72. *Cost.* In addition to the direct cost of purchasing the element, we consider all of the costs that requesting carriers would incur using an alternative element to provide the services it seeks to offer. Although not dispositive, the costs associated with self-provisioning or purchasing alternative elements from third-party suppliers are relevant to our determination of whether the element is a practical and economical alternative to the incumbent LEC's unbundled network element.

73. We believe that an "impair" standard based on cost is more appropriate than a standard based on profitability, because profit margins for both new and existing carriers will depend on the degree of competition that exists in the market. If the cost of the alternative element is materially greater than

the cost of obtaining the corresponding element from the incumbent, the requesting carrier will not be able to provide service at prices that are competitive with the incumbent's prevailing retail prices.

74. In determining whether the cost of self-provisioning or purchasing an element from a third-party source is materially higher than using the incumbent LEC's unbundled network element, we evaluate the difference between the cost to the requesting carrier of obtaining the unbundled element from the incumbent LEC at forward-looking costs and the cost of an alternative element. Because the Commission's rules require that network elements be priced based on forward-looking economic costs, we believe that forward-looking costs are the appropriate costs to consider in our analysis.

75. In order to provide service using its own facilities, a competitor will incur the costs of purchasing, installing, and provisioning the equipment it needs to provide service using its own loop or by interconnecting with the incumbent's network. The record in this proceeding addresses several types of costs associated with using an alternative element. These include the direct costs of provisioning the element, including fixed and sunk costs, as well as other costs that are likely to materially affect the requesting carrier's ability to provide the services it seeks to offer. "Fixed costs" are costs that do not vary with the level of output.[132] A "sunk cost," on the other hand, is a cost that, once incurred, cannot be recouped if the firm ceases production.[133] To the extent that a

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[132] *See, e.g.*, Dennis W. Carlton & Jeffrey M. Perloff, Modern Industrial Organization 31 (1989).

[133] *See Id.* at 32.

competitive LEC incurs significant fixed costs or sunk costs when it uses its own facilities or acquires facilities from a third party, these costs can disadvantage the competitor relative to the incumbent.

76. Fixed costs are frequently associated with economies of scale. Specifically, where a firm faces both a fixed cost and a constant or declining variable cost, the firm's average unit cost will fall as output increases, and the firm's cost structure is said to exhibit economies of scale. For example, the cost a competitive LEC incurs to construct its own fiber transport ring would constitute a fixed cost, because, at least in the short run, this cost would not vary as the competitive LEC's output changed.[134] If a competitive LEC incurs significant fixed costs when it uses a particular facility, in its early stages of development it would have a significantly higher average unit cost than the incumbent LEC, which has a significantly larger output and customer base over which to spread the fixed cost. Since the Commission's rules require unbundled transport to be priced based on forward- looking costs (a form of long-run average incremental cost), leasing the incumbent's unbundled transport facilities is likely to be significantly less costly than deploying one's own transport facilities when the competitor has a relatively small volume of traffic, and thus its output would be small relative to that of the incumbent.[135]

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[134]Similarly, a competitor that purchases its own switch or deploys feeder and distribution plant will incur significant fixed costs.

[135]Cf. Applications of Ameritech Corp., Transferor, and SBC Communications., Inc., Transferee, for Consent to Transfer Control of Corporations Holding Commission Licenses and Lines Pursuant to Sections 214 and 310(d) of the Communicaitons Act, CC Docket No. 98-141, Description of the Transaction, Public Interest Showing and Related Demonstrations, at 49-55 (filed July 24, 1998) (applicants argue that,

77. Certain network facilities also involve sunk costs, because the facilities cannot be easily re-deployed or sold should the competitor decide to cease offering service over those facilities.[136] For example, the cost of the loop serving a customer's home is largely a sunk cost because it cannot be recovered if the carrier ceases serving the customer. It is generally recognized that the need to incur sunk costs can constitute a barrier to entry.[137] Specifically, where an incumbent has already deployed sunk facilities to serve all customers, a competitive LEC may be unwilling to sink the costs of duplicative facilities, either because it may be unable to lure customers away from the incumbent and generate enough revenue to recover these sunk costs, or because resulting competition between itself and the incumbent LEC would drive prices so low that, even if the competitive LEC won a significant number of customers, it would still be

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because of economies of scale, they must merge in order to compete in areas outside of their regions).

[136]*See* MCI WorldCom Comments, Tab 2, Decl. of John E. Kwoka, paras. 11-12; AT&T Reply Comments, Tab B, Aff of R. Glenn Hubbard/William H. Lehr/Janusz A. Ordover/Robert D. Willig at para. 51. The total costs of providing telecommunications services include sunk costs and fixed costs. Sunk costs are costs that the entrant must incur that cannot be recovered if it later decides to exit the market, such as non-recurring costs for collocation, delays associated with connecting the incumbent's loops to a competitor's switch, and fees required by municipalities to construct rights-of-way. Fixed costs are those costs that carriers incur which do not vary based on the number of customers that they serve.

[137]*See, e.g.*, William J. Baumol, John C. Panzar & Robert D. Willig, Contestable Markets and The Theory of Industry Structure 290-92 (1982).

unable to recover its sunk costs. In such situations, the incumbent has a "first mover" advantage.[138]

78. The non-recurring costs of collocating equipment in the incumbent's end offices, including the costs of connecting the incumbent LEC's unbundled loops to the competitor's switch, and the fees required to obtain rights-of-ways, also constitute sunk costs. Unlike the costs associated with purchasing portable equipment, such as multiplexers or switches, the non-recurring costs incurred to collocate equipment and connect network elements to the competitive LEC's collocated equipment in an incumbent's central office are sunk costs and cannot be recovered if, for whatever reason, the carrier exits that market.

79. Additional costs, such as the costs a competitive LEC incurs to connect its own facilities to the incumbent LEC's unbundled network elements, affect the extent to which an alternative element is available as a practical and economic matter, such that a requesting carrier can actually use the element to provide the service it seeks to offer. For example, when a competitive LEC deploys its own switch but purchases the customer's unbundled loop from the incumbent, the competitive LEC may incur significant costs to connect the customer's loop, located in the incumbent LEC's central office, to its own switch. When these cutover costs are added to the costs of collocation, a competitor's ability to provide service in an efficient manner, when using its own switch for unbundled switching, could be materially diminished. We thus look at all of the costs a competitor must

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[138] *See, e.g.*, Jean Tirole, The Theory of Industrial Organization 314-15 (1988); Richard J. Gilbert, Mobility Barriers and the Value of Incumbency in 1 The Handbook of Industrial Organization 491 (Richard Schmalensee and Robert D. Willig, eds.) (1989)

incur when using alternatives to the incumbent LEC's network element.

80. We find that significant fixed and sunk costs associated with using alternatives outside the incumbent LEC's network contribute to a finding that lack of access to the incumbent's unbundled network elements impairs the requesting carrier's ability to provide the service it seeks to offer. This is particularly true for a new competitive LEC that has few customers from which it can recover these costs. Because the per- customer costs decrease as the number of subscribers served by the carrier increases, a carrier must acquire a sufficient customer base if it is to recover substantial costs associated with deploying its own facilities.[139] It is reasonable, therefore, that a competitive LEC, at a minimum, would want to serve a substantial number of business and/or residential customers within a particular Metropolitan Statistical Area (MSA).[140] If the

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[139]In addition, the per-customer costs decrease as the distance required to reach each subscriber decreases. The per-subscriber cost of service will be lower in those situations where carriers can aggregate and carry large volumes of traffic over short distances rather than small volumes of traffic over long distances. *See* MCI WorldCom Comments, Tab 3, Decl of Mark T. Bryant, at para. 11.

[140]*See, e.g.*, Covad Comments at 2 (business plans call for it to deploy facilities in 51 MSAs by the end of 1999); USTA UNE Report at III-3 ("Within top 50 MSAs, CLECs have deployed nearly 30,000 miles of fiber"). An MSA is also a reasonable entry market because number portability is deployed on an MSA basis, and available to serve a requesting carrier's customers within these areas. Telephone Number Portability, First Memorandum Opinion and Order and Further *Notice* of Proposed Rulemaking, 11 FCC Rcd 8352, para. 3 (1997) (requiring all LECs to implement long term number portability in the 100 largest MSAs according to a phased deployment schedule). We recognize that carriers may serve areas smaller than the total MSA. If we make a determination that the

competitor must collocate its own switches in multiple central offices throughout the MSA in order to serve those customers, the costs associated with collocation may impair the competitor's ability to provide the services it seeks to offer, even if the cost of purchasing the individual equipment hardware is not excessive.

81. In addition, we find that the type of customers that a competitive LEC seeks to serve is relevant to our analysis of whether the cost of self- provisioning or acquiring an element from a third-party supplier impairs the ability of a requesting carrier to provide the services it seeks to offer. Section 251(d)(2)(B) requires us to consider whether lack of access to the incumbent LEC's network elements would impair the ability of the carrier to provide the *services* it seeks to offer. Consistent with the Act, we define the term "services" as it is used in section 251(d)(2)(B), to mean "telecommunications service," as it is defined in section 153(46) of the Act.[141] Section 251(c)(3) of the Act places an affirmative duty on the incumbent LEC to provide unbundled elements to "any requesting telecommunications carrier for the provision of a telecommunications service."[142] Section 251(d)(2)(B), in turn, requires that a requesting carrier should not have access to unbundled elements unless it would be impaired in its ability to provide "the services that it seeks to offer."[143] Different types of customers use different services (*e.g.*, large

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incumbent need no longer offer an unbundled element because there are viable alternatives available on an MSA basis, we do not believe that such a carrier would be impaired because the alternatives would most likely be available to serve customers located in smaller areas within the MSA.

[141] 47 U.S.C. § 153(46).

[142] 47 U.S.C. § 251(c)(3).

[143] 47 U.S.C. § 251(d)(2)(B).

business customers order different services than residential customers). We therefore conclude that it is appropriate for us to consider the particular types of customers that the carrier seeks to serve.

82. Competitive LECs generally seek to provide service to residential and small business customers and/or to large business customers. The different revenue-generating potential of these different customer groups will often determine whether or not a competitive LEC can afford to incur the costs of self-provisioning a facility or of acquiring it from a third-party supplier, to the extent that it is available from a third-party provider. For example, a model submitted by MCI WorldCom that compares the costs of serving residential customers using unbundled elements from the incumbent LEC with the costs of serving the customers using its own facilities indicates that, at low market penetration levels, the costs of collocation would impair a competitive LEC's ability to serve residential customers using its own facilities. The model further demonstrates, however, that using the incumbent LEC's unbundled network elements, the entrant would be able provide service, even at the same low market-penetration levels.[144]

83. Although the model submitted by MCI WorldCom is clearly not dispositive, we note it to illustrate that a requesting carrier's ability to serve residential and small business customers may be materially diminished without access to the incumbent LEC's network. Larger business customers, on the other hand, may generate sufficient revenue to allow the requesting carrier to serve the customer using

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[144]Letter from Lori Wright, MCI WorldCom, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket Nos. 96-98; 95-185 (filed July 13, 1999).

certain self-provisioned facilities or facilities acquired from third-party sources.

84. We also consider, as part of our analysis, the economies of scale and scope that the incumbents have due to their ubiquitous network. The record demonstrates that, although facilities-based competition has developed in particular markets (primarily for large business customers in high-density areas), incumbent LECs continue to enjoy significant economies of scale and density not enjoyed by competitive LECs.[145] Because these economies lower the incumbent's per-customer costs of providing service, vis-a-vis their competitors, we find these economies relevant to our inquiry of the extent to which costs of using alternative elements impair a requesting carrier's ability to provide the services it seeks to provide.

85. We are not persuaded by the argument of BellSouth and other incumbent LECs that we should not consider the impact of the incumbents' economies of scale because competitors are capable of matching or exceeding the incumbent LECs' economies by building their own

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[145]For example, MCI WorldCom describes the economies of scale to which several unbundled elements are subject. MCI WorldCom Comments, Tab 3, Decl. of Mark T. Bryant, at paras. 2-24. *See also* NTIA Comments at 30-31 ("To the extent that the inability to obtain an unbundled element from an ILEC increases a CLEC's costs (for example, by forcing it to purchase a more expensive substitute or by denying the CLEC the economies of scale, scope, or density associated with the ILEC UNE), the resulting diminution in profits will reduce the internal funds available to extend and upgrade the CLEC's network and service offerings)); Qwest Comments at 20 (stating that the incumbent LECs, themselves, admit that the ubiquity of their networks creates unique economies of scope and scale.) (citation omitted).

facilities.[146] The Commission has concluded previously that an incumbent LEC's existing *infra*structure generally enables it to serve new customers at a much lower cost than a requesting carrier that must install its own switches, trunking, and loops to serve its customers, and that Congress has addressed this problem by mandating that incumbent LECs share their economies of scale and density with competitors.[147]

86. We continue to believe that one important purpose of the unbundling provisions of the Act is to permit competitive LECs to compete with the same economies as the incumbents, especially in the early stages of local competition, when their networks are limited in their reach, and their customer bases are necessarily small.[148] The incumbent LECs still enjoy cost advantages and superiority of economies of scale, scope, and ubiquity as a result of their historic, government-sanctioned monopolies. These economies are now critical competitive attributes and would belong unquestionably to the incumbent LECs if they had "earned" them by superior competitive skills. These advantages of economies, however, were obtained by the incumbents by virtue of their status as government-sanctioned and protected monopolies. We believe that these government-sanctioned advantages remain barriers to the requesting carriers' ability to provide a range of services to a wide array of customers, and that their existence justifies placing a duty on the incumbent carriers to share their network facilities. Indeed, Congress, in section 259 of the Act, recognized

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[146]BellSouth Reply Comments at 3-5.

[147]*Local Competition First Report and Order*, 11 FCC Rcd at 15508-09, para. 10-11.

[148]*Id.* at 15528, 15531, 15624, paras. 56, 61, 242.

expressly the benefits that the incumbent LECs have as a result of their economies of scale and scope. Section 259 requires the Commission to ensure that incumbent LECs make their *infra*structure available to qualifying carriers on terms and conditions that permit the qualifying carriers to "fully benefit from the economies of scale and scope of such [incumbent] local exchange carrier."[149] Although section 259 of the Act is different from section 251 in that qualifying carriers obtaining *infra*structure from the incumbent LEC pursuant to a section 259 agreement may not use such *infra*structure to compete with the incumbent LEC in its service territory, both sections make the incumbent LECs' broad economies of scale and scope available to other carriers by requiring them to grant other carriers access to their networks.[150]

87. We do not agree with Ameritech that competitive LECs are not impaired in their ability to provide service

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[149]47 U.S.C. § 259(b)(4).

[150]Implementation of *Infra*structure Sharing Provisions in the Telecommunications Act of 1996, CC Docket No. 96-237, Report and Order, 12 FCC Rcd 5470, 5495, 5497, paras. 50, 54 (1997) (*Infra*structure Sharing Order) (stating that incumbent LECs must make the same network facilities and functionalities, including unbundled network elements and resale, available to qualifying carriers under section 259 as they would make available under section 251). The Commission also found in the *Infra*structure Sharing Order that cost, availability, timeliness, functionality and other operational aspects associated with use of the incumbent LEC's *infra*structure determine whether or not the qualifying carrier seeking access to the incumbent LEC's network under section 259 "fully benefits from the economies of scale and scope" of the incumbent LEC. *Id.* at 5528, para. 117. These are some of the same factors that we have identified here as being relevant to whether a requesting carrier can achieve the same benefit from using an alternative network element as it would from using the incumbent LEC's network element.

because they have cost efficiencies which the incumbent LECs do not have.[151] Although we agree that competitors may have certain cost advantages, we find that these advantages are likely to be outweighed by other costs that competitive LECs, but not incumbent LECs, incur to provide service. For example, many competitive LECs are likely to incur higher costs than the incumbent LECs to attract customers, because unlike the incumbent, many competitive LECs must establish a brand name and develop a reputation for service quality before they can overcome the incumbents' long-standing relationships with their customers. Similarly, competitive LECs must incur the initial costs of setting up their operations and developing their back-office systems. AT&T also points out that new entrants face a high level of risk when they enter the local market, because they enter without the incumbent LEC's knowledge of local operating costs (*e.g.*, location and quality of outside plant facilities) and consumer demand (*e.g.*, peak traffic volumes over certain facilities and demand growth).[152]

88. We recognize that a new entrant in many industries will face disadvantages arising from economies of scale. We further recognize that, even after competition in local telecommunications markets is well-established, and the Commission can eliminate certain unbundling requirements, smaller competitors will be at a disadvantage to the extent that incumbent LECs continue to enjoy significant economies of scale in the provision of local telephone service.

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[151] *See, e.g.*, Ameritech Comments at 61; Ameritech Reply Comments, Att. A, Aff. of Debra J. Aron/William L. Fitzsimmons/Robert G. Harris, at 16-19.

[152] AT&T Reply Comments at Tab B, Aff. of R. Glenn Hubbard/William H. Lehr/Janusz A. Ordover/Robert D. Willig, at para. 65.

Nonetheless, we believe that the existence of economies of scale, as well as sunk costs, are relevant factors to consider in our assessment of whether failure to provide access to a particular unbundled network element will impair a requesting carriers' ability to provide the services it seeks to offer. Although we find economies of scale to be a relevant factor in our analysis, we note that we are not basing our determination of whether competitive LECs are "impaired" within the meaning of section 251(d)(2) solely on the existence of scale economies, nor do we assume that the incumbent LEC's scale economies are insurmountable in all circumstances.

89. *Timeliness.* We also conclude that the time associated with using alternative elements is relevant to a determination of whether a requesting carrier would be impaired in its ability to provide the services it seeks to offer. A thorough evaluation of the delays associated with using alternative elements requires an analysis of both the start-up time required for a competitor to enter a market and serve a substantial number of customers in an MSA, as well as the time it would take a competitor that has already entered the market to expand its operations to serve more customers. We conclude that delays caused by the unavailability of unbundled network elements that exceed six months to one year may, taken together with other factors, materially diminish the ability of competitive LECs to provide the services that they seek to offer.

90. We recognize that the deployment of alternative elements, whether through self-provisioning facilities or by acquiring them from third-party suppliers, will require a reasonable amount of time. The delays associated with using alternative network elements will exist whether the requesting carrier is either just beginning to provision service

or whether it is deploying additional facilities to expand its operations to serve more customers. Commenters differ in their opinions as to what constitutes a reasonable time to self-provision facilities.[153] There is considerable evidence in the record, however, that indicates that it takes between six months and one year to engineer, furnish, and install a switch, including the time needed to obtain collocation space in the incumbent LEC's central offices where the switch will be connected to unbundled loops.[154] Also, NTIA argues that we should consider as nontrivial any delay in service provisioning in excess of six months as compared to the time it would take for a competitive LEC to begin provisioning a service using an incumbent LEC's network element.[155]

91. Based on the record before us, we conclude that it is reasonable to expect that a competitive LEC will need between six months and one year to provide service using a self-provisioned facility or one acquired from an alternative source. The local telecommunications market grows at an extremely rapid pace for many products and services. Indeed, we have reported that the demand for certain services has increased significantly from year to year since the passage of

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[153]*See infra* section V(D) (stating that some incumbent LECs claim that a switch can be fully provisioned in 40 days (BellSouth Reply Comments at 29), while competitive LECs assert that it can take between six months and two years (CompTel Comments at 39, n.89)).

[154]*See* nfra Section V(D). AT&T also maintains that gaining access to commercial buildings for the deployment of loop facilities often involve delays of up to six months while the competitor attempts to negotiate access with the building owner. AT&T Reply Comments at 82.

[155]NTIA Comments at 32.

the 1996 Act[156] and that we expect this trend to continue, particularly for advanced services.[157] We believe that any delay that a competitive LEC experiences in serving this fast-paced, high- growth market can impair its ability to provide its desired services. Although we cannot quantify precisely how much of a delay associated with an alternative network element will materially diminish the ability of a competitor to provide its desired services, we find that delays that exceed six months to one year may, taken together with other factors, materially diminish the ability of a competitive LEC to provide the services it seeks to offer because it prevents the competitive LEC from responding quickly to the demand for its services in a rapidly changing market. Moreover, we agree with NTIA that incumbent LECs can take advantage of delays caused by the unavailability of unbundled network elements by using their "unique access to most customers to gain a foothold in new markets, and, in markets where services may be offered pursuant to long term-contracts (*e.g.*, DSL and

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[156]For example, residential customers with existing telephone service purchased over two million additional telephone lines for their homes between 1996 and 1997. Trends in Telephone Service, Federal Communications Commission, Sept. 1999, at Table 20.4 (Trends in Telephone Service). The number of cellular telephone subscribers increased by nearly 14 million subscribers between December 1997 and December 1998. Trends in Telephone Service at Table 2.1.

[157]Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, Report, 14 FCC Rcd 2398, 2419-20, 2428, 2445- 46, paras. 42, 56, 90 (1999) (706 Report) (Report finds that there is currently rapid demand for broadband services by all consumers, particularly residential consumers, and that such demand is expected to grow.).

other advanced data services), to 'lock-up' customers in advance of competitive entry."[158]

92. We disagree with Ameritech that a competitor is not impaired in its ability to provide a service if it can deploy alternative facilities within two years of its decision to do so.[159] Congress made unbundled elements available to competitive LECs to avoid the time it would take competitive LECs to duplicate the incumbents' networks, thereby promoting the rapid development of competition for all consumers. We believe that requiring consumers to wait up to two years to have access to a choice of competitive service offerings, while competitors attempt to provide service without access to unbundled elements, is unreasonable and inconsistent with the objectives of the Act.

93. We also disagree with US West's claim that we should not consider the amount of time required for a competitive LEC to self-provision an element or acquire it from a third-party supplier because there are always inherent provisioning delays associated with using alternative elements.[160] We believe the amount of time it takes a competitive LEC to self-provision an element or acquire an alternative from a third-party supplier is highly relevant to its ability to provide the services it seeks to offer. In particular, we agree with commenters that in order to compete effectively, competitive LECs must be able to initiate service

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[158]NTIA Comments at 31.

[159]Ameritech Comments at 35.

[160]US West Comments at 22-23.

promptly upon the request of their customers.[161] We also agree with NTIA that delays in the introduction of competitive services caused by the unavailability of unbundled elements from the incumbent LEC would give the incumbent valuable time to entrench itself with existing customers.[162]

94. Although we agree with US West that self-provisioning or acquiring alternative network elements from third-party suppliers involves normal delays incurred when starting or expanding a business, we find that significant delays will materially diminish a requesting carrier's ability to provide the services it seeks to offer. In addition, we have accounted for the inherent provisioning period to which US West refers by determining that it will take competitors approximately six months to one year to provide service, and that delays that exceed that time period would materially diminish a requesting carrier's ability to provide a competitive service.

95. We disagree with US West that it would be too administratively complex to consider the differences between the time it would take a competitor to obtain an element from the incumbent LEC and the time it would take to self-

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[161] *See, e.g.*, AT&T Reply Comments at 45 ("The delays AT&T has discussed - such as those involved in obtaining building access and right-of-way agreements to lay fiber - are substantial delays and ones that would be imposed on a recurring, ongoing basis as to CLECs that have already 'entered' a market and are seeking to win new customers, to build and connect facilities for those customers, and to compete with the incumbent LEC in offering timely commitments for due dates when those customers are choosing a carrier."); MCI WorldCom Comments at 18.

[162] NTIA Comments at 31.

provision an element.[163] We do not find it to be too administratively complex to consider whether a delay associated with using an alternative network element exceeds the six month to one year timeframe we identified above. As we stated above, the "impair" standard does not mandate precise quantification; nor does it involve an analysis of the delay suffered by every carrier. It requires instead a consideration of whether, as a general matter, there is an identifiable difference in the amount of time required to provide service using an alternative element and the amount of time required to provide service using the incumbent LEC's element, such that the delay would materially diminish the competitor's ability to provide the services that it seeks to offer.

96. *Quality*. We also conclude that the quality of alternative network elements available to the competitive LEC is relevant to a determination of whether a requesting carrier's ability to provide service is impaired. We agree with the California PUC and other commenters that a material degradation in service quality associated with using an alternative element will materially diminish a competitor's ability to effectively provide service.[164] Examples of diminished quality presented in the record include greater dialtone delay, higher blocking rates, elevated noise on a

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[163]US West Comments at 22-23.

[164]California PUC Reply Comments at 3. *See also* Texas PUC Comments at 7-8; Choice One Joint Comments at 6-7; Columbia Comments at 9; Corecomm Comments at 17-20; KMC Comments at 5-6; Pilgrim Comments at 14-15.

telephone line and increased failure rates.[165] These types of quality problems, all of which are recognizable by the end-user customer may, taken together with other factors, materially diminish the ability of the competitor to provide the services that it seeks to offer. In addition, we believe that the type of service a competitor seeks to provide is also relevant to the quality factor. For example, end users may be much less tolerant of problems that affect data services, than they would be for voice service.[166]

97. *Ubiquity*. We conclude that we should also consider the extent to which the competitive LEC can serve customers ubiquitously using its own facilities or those acquired from third-party suppliers. We agree with competitive LECs that they may be impaired if lack of access to an unbundled element materially restricts the number or geographic scope of the customers they can serve.[167] For example, incumbent LECs own 98 percent of all access lines in Texas and have deployed 1538 switches throughout the state. According to the Texas PUC, if a competitive carrier seeks to provide local telephone service throughout the state, it would be

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[165]TRA Comments at 23. *See also* ALTS Comments at 21-22 ("If use of an alternative results in a competitive service offering with greater levels of signal loss, circuit outage or mean repair time compared to that of the incumbent, it cannot be found that the alternative presents the requesting carrier with an element that consumers will accept as part of a competitive service offering.").

[166]*See* TRA Comments at 23 (stating that a competitive LEC is impaired if the substitute element would prevent it from offering the same functionality as the incumbent's service, *e.g.*, stutter dialtone or message-waiting indicator).

[167]*See, e.g.*, Cable & Wireless Comments at 11; Prism Comments at 15; TRA Comments at 23.

impractical, if not impossible, for the carrier to replicate the incumbents' networks.[168]

98. Although we acknowledge that not all competitive LECs will want to provide ubiquitous service across broad geographic areas, those that do will likely be disadvantaged vis-a-vis the incumbent, especially in the early stages of deployment, because the incumbent LECs still enjoy advantages of a ubiquitous network that provide them with economies of scale and the ability to reach all consumers in their service territories. It is reasonable to expect that, in many cases, competitors would want to provide ubiquitous service in order to achieve similar economies of scale that will allow them to spread the costs of construction, equipment, and marketing across as many customers as possible. It is also reasonable to expect that in some cases, the ability to serve ubiquitously will be necessary to meet consumer demand for competitive alternatives in broad geographic areas. It such cases, lack of access to the incumbent's unbundled network elements could significantly thwart the competitor's ability to respond to consumer demand.[169] Denying access to the incumbent's unbundled network elements, when use of alternative sources would materially diminish the competitors' ability to serve their intended geographic area, would be inconsistent with the goal of the 1996 Act to bring competition to the greatest number of customers. Indeed, the inability to provide service ubiquitously may be especially important for competitive LECs seeking to serve residential and small business customers located throughout a state.

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[168]Texas PUC Comments at 14.

[169]*See* MCI WorldCom Comments at 23-24.

99. *Impact on Network Operation*. We find that we should also consider how self-provisioning a network element or obtaining it from a third-party supplier may affect the technical manner in which the competitor can operate its network. We agree with the Washington Utilities Commission that overall network performance is an important consideration in our 'mpair" analysis.[170] In order to compete with the incumbent, competitive LECs must be able to connect alternative elements either to their own networks or to other incumbent LEC elements that they use to provide service. Thus, material operational or technical differences in functionality that arise from interconnecting alternative elements may also impair a requesting carrier's ability to provide its desired services.[171]

100. As we stated above, the incumbent LECs' relative advantages regarding costs, ubiquity, timeliness, and quality comprise only a part of a determination of whether or not a competitive LEC's ability to provide a competitive service is impaired. Indeed, as stated above, competitive LECs may have reasons for not entering a particular market that have nothing to do with whether lack of access to the incumbent's network would or would not impair their ability to offer service in that market. For example, it is likely that not all competitive LECs intend to invest in their own facilities to serve residential customers. Congress, however, clearly intended for competition to develop in these markets, as well as in the business markets, and we see as one of the primary goals of section 251, to facilitate competition in these markets. Because the ground work for competition is still

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[170]Washington UTC Comments at 13.

[171]*See, e.g.*, ALTS Comments at 21; Cable and Wireless Comments at 14-16; MCI WorldCom Comments at 25-26; Qwest Comments at 22-25.

uncharted, and we have seen very limited competition in the residential market to date, we seek to remove economic and other barriers that may forestall the development of competition for these consumers. Accordingly, we unbundle elements in a manner that we believe will have the desired effect of promoting competition in all markets as quickly as possible.

(iii) Other Factors to Be Weighed in Our Unbundling Analysis

101. We conclude that, in addition to the necessary" and "impair" standards, section 251(d)(2) permits us to consider other factors that are consistent with the objectives of the Act in making our unbundling determination. Section 251(d)(2) states that, "[i]n determining what network elements should be made available for purposes of subsection 251(c)(3), the Commission shall consider, at a minimum" the "necessary" and "impair" standards."[172] This language implies clearly that other factors may be considered as long as we consider the "necessary" and "impair" standards. Moreover, as the D.C. Circuit has held, when Congress requires an agency to "consider" several listed factors, it may also consider additional factors in making its decision. For example, in *Central Vermont Railway, Inc. v. Interstate Commerce Commission*, the D.C. Circuit found that the language of a statute addressing railroad mergers that directed the Interstate Commerce Commission to "consider at least the following [factors]," also allowed the agency to consider factors other than those specifically listed.[173] In a later case that cited

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[172]47 U.S.C. § 251(d)(2).

[173]*Central Vermont Ry. v. ICC*, 711 F.2d 331, 335 (D.C. Cir. 1983) (*Central Vermont Ry. v. ICC*).

Central Vermont Railway, the court explained that an agency's duty to "consider' specific factors means only that it must "reach an 'express and considered conclusion' about the bearing of a factor, but is not required to give 'any specific weight' to the factor."[174]

102. In the *Local Competition First Report and Order*, the Commission stated that it agreed with several incumbent LECs that the plain import of the "at a minimum" language in section 251(d)(2) requires the Commission to consider the standards enumerated there, "as well as other standards we believe are consistent with the objectives of the 1996 Act."[175] The Supreme Court did not dispute this determination. In fact, it directed us to adopt "some limiting standard rationally related to the goals of the Act."[176] We are therefore not persuaded by the argument of the incumbent LECs that we may now require unbundling only where the "necessary" or "impair" standards have been met.[177] If Congress had intended to require the incumbent LECs to unbundle an element only when it was "necessary" to, or would "impair" the requesting carrier's ability to provide its desired service, Congress would not have used the discretionary phrase "consider at a minimum." Rather, Congress would have required the Commission to apply the "necessary" and "impair" standard, without consideration of any additional factors.

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[174] *Time Warner Entertainment Co. v. FCC*, 56 F.3d 151, 175 (D.C. Cir. 1995) (quoting *Central Vermont Ry. v. ICC*, 711 at 336).

[175] *Local Competition First Report and Order*, 11 FCC Rcd at 15641, para. 280.

[176] *Iowa Utils. Bd.*, 119 S. Ct. at 734.

[177] *See, e.g.*, GTE Comments at 27-28; Ameritech Joint Reply Comments at 23- 25.

103. Accordingly, in addition to the "necessary" and "impair" standard, we conclude that we may consider several factors, set out below, that further the goals of the Act in accordance with the Supreme Court's directive. Two fundamental goals of the Act are to open the local exchange and exchange access markets to competition and to promote innovation and investment by all participants in the telecommunications marketplace.[178] To further the goal of opening the local market to competition, we may consider how access to specific unbundled network elements will encourage the rapid introduction of local competition to the benefit of the greatest number of consumers.

104. We may also consider how the unbundling rules we adopt will promote facilities-based competition by competitive LECs. We believe that it is the development of facilities-based competition that will provide both incumbent and competitive LECs with the incentives to innovate and invest in new technologies. Such innovation and investment will bring greater choices of telecommunication services and lower prices to a greater number of consumers. We may also consider the extent to which we can reduce regulatory obligations to provide access to network elements as alternatives to the incumbent LECs' network elements become available in the future.

105. We may further consider whether unbundling particular network elements will provide certainty in the market so that competitive LECs can attract investment capital and execute their business plans. We may also take into account how we can make the unbundling rules administratively manageable for the Commission and the

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[178] Joint Explanatory Statement at 1.

states to apply. The adoption of administratively workable unbundling rules will enable the Commission and the states to implement and enforce such rules, thereby facilitating the ability of competitive LECs to enter the market as quickly and efficiently as possible.

106. We do not give particular weight to any of the factors we identify. Rather, we consider the relationship among the factors we take into account for a particular network element, and determine whether the sum total of the effect of the factors require a finding that the element must be unbundled. Thus, we do not require that all of the factors be met before we decide whether or not to require incumbent LECs to unbundle a particular network element. Indeed, there may be circumstances in which there is significant evidence that competitors are impaired without unbundled access to a particular element, but that unbundling the element would not further the goals of the Act. In the final analysis, as we explain in more detail below, we consider the effect of these factors in order to develop unbundling obligations that are most consistent with Congressional intent.

107. *Rapid Introduction of Competition in All Markets.* Congress has emphasized that a major goal of the 1996 Act is to accelerate the development of local competition. Indeed, the preamble to the Act states that it provides a "pro-competitive, de-regulatory national policy framework designed to accelerate rapidly" deployment of advanced telecommunications technologies by opening all markets to competition.[179] With regard to unbundled network elements, in particular, the Eighth Circuit Court of Appeals found that the use of unbundled elements promotes the prompt

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[179] *Id.*

development of competition, as intended by the Act. The court stated that the Act "provides for unbundled access to incumbent LECs' network elements as a way to jumpstart competition in the local telecommunications industry."[180] We therefore find that we may consider whether an unbundling obligation is likely to encourage requesting carriers to rapidly enter the local market and serve the greatest number of customers. Conversely, we may also consider whether the failure to require unbundling will cause any class of consumers to wait unnecessarily for competitive alternatives.

108. We also note that Congress specified certain network elements in the section 271 checklist that BOCs are required to unbundle before they obtain in-region interLATA relief. In particular, the checklist requires BOCs to demonstrate that they are providing loops, switching, transport, signaling and databases, and operator services/directory assistance.[181] Accordingly, we may consider whether requiring all incumbent LECs to unbundle these same elements would promote the rapid introduction of competition on a nationwide basis.

109. We agree with NTIA that there is a common purpose between sections 251 and 271 of the Act of opening the incumbents' monopoly local exchange networks to competition.[182] We believe that Congress intended section 251(c)(3) of the Act and the competitive checklist to contain similar, if not identical, obligations. Although we do not conclude that the checklist determines definitively that all incumbent LECs are required, pursuant to section 251, to

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[180]Iowa Utils Bd. v. FCC, 120 F.3d at 811.

[181]47 U.S.C. § 271(c)(2)(B).

[182]NTIA Comments at 35-40.

unbundle the items enumerated in section 271, we find that section 271 sheds some light on what elements Congress believed should be unbundled in order to open local markets to competition. We may therefore consider whether an element is among the elements identified in the competitive checklist as we make our determination of which network elements incumbent LECs must provide on an unbundled basis.

110. *Promotion of Facilities-Based Competition*, Investment, and Innovation. A fundamental goal of the Act is to promote investment and innovation by all participants in the telecommunications marketplace, and, in particular, to encourage rapid deployment of new telecommunications technologies.[183] As the Commission has stated, the construction of new local exchange networks "will not only lead to innovation by the new competitors, but should also spur [the incumbent LECs] to upgrade their systems and offer a broader array of desired service options to meet consumers' demands."[184] By promoting innovation both by the incumbent LECs and competitive LECs, the Act enables these carriers to produce innovative new services for

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[183] Joint Explanatory Statement at 1. *See also* NTIA Comments at 15, n.42, (citing H.R. Rep. No. 104-204, at 47-48 (1995)("For decades, U.S. telecommunications policy has relied heavily on regulated monopolies to provide telecommunications service to business and consumers. . . . Technological advances would be more rapid and services more widely available and at lower prices if telecommunications markets were competitive rather than regulated monopolies."); 141 Cong. Rec. S8015 (daily ed. June 8, 1995) (statement of Sen. Pressler) ("if we had done what we are trying to do in this bill - that is, to require [incumbent LECs] to unbundle and interconnect, to allow for local competition, . . . the whole telephone communications industry might be more innovative today than it is.")).

[184] Competitive Networks *Notice* at para. 23.

consumers. Specifically, consumers benefit when carriers invest in their own facilities because such carriers can exercise greater control over their networks, thereby promoting the availability of new products that differentiate their services in terms of price and quality. We may therefore consider the extent to which the unbundling obligations we adopt will advance the development of facilities-based competition and will encourage innovation by both incumbent and competitive LECs.

111. We seek to adopt unbundling requirements that are broad enough to provide requesting carriers with the elements they need to ramp up towards facilities deployment. At the same time, we remain cognizant of the Supreme Court's mandate against granting blanket access to the incumbents' network in a manner that is inconsistent with the "necessary" and "impair" standards of section 251(d)(2), or with the goals of the 1996 Act.[185] We believe that the standards we articulate in this Order will strike the appropriate balance by unbundling only those network elements without which a competitive LEC's ability to provide service will be materially diminished.

112. We agree with the competitive LECs that argue that unbundled access to certain incumbents' network elements will accelerate initially competitors' development of alternative networks because it will allow them to acquire sufficient customers and the necessary market information to

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[185]Iowa Utils, Bd., 119 S. Ct. a 735. *See also* NTIA Comments at 25 ("[The Commission] should seek so far as possible to construe [Section 251(d)(2)] in a way that advances the procompetitive goals of the 1996 Act, including the promotion of facilities-based competition.")

justify the construction of new facilities.[186] Indeed, many commenters in this proceeding emphasize that they plan to deploy alternative facilities as soon as it is technically and economically possible to do so at a cost that is close to the incumbent LECs' prices for network elements.[187] According to these commenters, competitive LECs prefer to use their own facilities or alternatives outside of the incumbent's network when they are able to do so, in order to reduce their reliance on a primary competitor.[188] We find this explanation to be reasonable. Use of the incumbent LEC's network elements requires competitive LECs to disclose details about their customers to their chief competitor. Moreover, it is reasonable to expect that competitive LECs would prefer to have direct control of their networks to ensure the quality of their service and to offer products and pricing packages that differentiate their services from the perspective of end users.[189]

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[186]*See, e.g.*, AT&T Comments at 11-12, 21-22 (stating that using unbundled network elements also facilitates the transition to facilities-based competition because it permits entrants to gather critical information, such as customers' calling volumes and traffic patterns, that they need to plan their facilities' deployment); MCI WorldCom Comments at 8-9; Sprint Reply Comments at 8.

[187]*See, e.g.*, AT&T Reply Comments at 33-34; CompTel Comments at 12; MCI WorldCom Comments at 8-9, 26-27; Net2000 Comments at 2; Sprint Comments at 19- 21 ("Any carrier desiring a significant market presence over the long term must consider self-provisioning as the most desirable business strategy - indeed the only strategy that can ensure that a carrier is the master of its own fate.")

[188]*See* MCI WorldCom Comments at 8-9; Sprint Comments at 20; ALTS Reply Comments at 23-24; MCI WorldCom Reply Comments at 19.

[189]*See* Competitive Networks *Notice* at para. 4; Sprint Comments at 19.

113. *Reduced Regulation.* Another goal of the Act is to deregulate where market conditions warrant.[190] We may therefore consider the extent to which we can reduce regulatory obligations to provide access to network elements as alternatives to the incumbent LECs' network elements become available in the future.

114. *Certainty in the Market.* Among other things, the Act seeks to promote competition by eliminating barriers to entry into the local market. We may therefore consider how the unbundling obligations we adopt in this Order facilitate competitive entry. Accordingly, we find that the unbundling requirements we adopt should typically provide the uniformity and predictability new entrants and fledgling competitors need to develop and implement national and regional business plans. In addition, uniform and predictable unbundling rules will provide financial markets with reasonable certainty so that competitive LECs can attract the investment capital they need to execute their business plans. Specifically, uniform and predictable unbundling rules reduce substantially competitive LECs' risk of underutilized investment or cash flow drain by providing financial markets with some certainty that the competitors will be able to execute their business plans.

115. We also find that we should, whenever possible, adopt unbundling obligations that can be included easily in interconnection agreements between the incumbents and the competitive LECs, with as little risk of subsequent litigation as possible. Litigation over the incumbents' unbundling obligations requires the parties to these agreements, and the state commissions that approve them, to expend vast amounts

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[190] Joint Explanatory Statement at 1.

of time and resources, ultimately impairing the ability of competitive LECs to execute their business plans.

116. *Administrative Practicality*. We may also consider whether the unbundling rules we adopt are administratively practical to apply. Any rule adopted in an administrative proceeding runs the risk of being potentially overinclusive in some situations and under-inclusive in other situations. A rule of general applicability rarely will neatly fit all situations. Nonetheless, administrative agencies are entitled to proceed by rulemaking as well as by adjudication.[191] In addition, the goal of administrative efficiency has widespread support from diverse segments of the industry, even where they disagree on the substantive outcome of the proceeding.[192] We therefore seek to adopt unbundling rules that provide for administrative ease in addressing the incumbents' unbundling obligations today, as well as in the future, as alternatives to incumbent LEC network elements become available. We believe that adopting rules that are administratively practical to apply will also enhance certainty in the marketplace by allowing us to apply the rules efficiently to respond to changes in the marketplace.

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[191]Our mandate from the Court is similar to other instances in which federal agencies have implemented a general rule of applicability. *See* FCC v. WNCN Listeners Guild, 450 U.S. 582 (1981); Checkosky v. SEC, 23 F.3d 452 (D.C. Cir. 1994); Northeast Utils. Service Co. v. FERC, 993 F.2d 937 (1993).

[192]*See, e.g.*, Ameritech Comments at 5 (stating that Ameritech's proposed standards are "easy to administer."); CPI Comments at 13 (stating that the Commission should make regulation efficient by avoiding case-by-case decisions); KMC Comments at 2-3 (stating that a national list of unbundled elements allows for more efficient implementation of the 1996 Act).

C. Adoption of a National List of Unbundled Network Elements

1. Background

117. In the *Local Competition First Report and Order*, the Commission concluded that identifying a specific list of network elements that must be unbundled, applicable in all states and territories, would best further the "national policy framework" Congress established to promote competition in local markets. In particular, the Commission found that a national list would: (1) allow requesting carriers, including small entities, to take advantage of economies of scale; (2) provide financial markets with greater certainty in assessing requesting carrier's business plans; (3) facilitate the states' ability to conduct arbitrations; and (4) reduce the likelihood of litigation regarding the requirements of section 251(c)(3).[193]

118. In the *Notice*, we stated that we found nothing in the Supreme Court's decision that would require us to eliminate national unbundling requirements. We tentatively concluded that we should continue to identify a minimum set of network elements that must be unbundled on a nationwide basis, and sought comment on this conclusion. We also sought comment on whether the existence of geographic variations in the availability of elements outside of the incumbent LEC's network is relevant to a decision to impose minimum national unbundling requirements.[194]

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[193] *Local Competition First Report and Order*, 11 FCC Rcd at 15616-27, paras. 226-48, 281-83.

[194] *Notice* at para. 14.

119. Nearly all of the state commissions commenting in this proceeding,[195] and all of the competitive LECs,[196] assert that we should adopt a national list of unbundled elements. The state commissions agree that the Commission has authority to adopt such a list, and that it should implement a process for the states to modify the list in the future, based on conditions that exist in a particular state.[197] The New York Commission also proposes that, in establishing the national list, we should evaluate whether to exclude an element from the unbundling obligations in discrete market areas where

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[195]California PUC Comments at 3-4; Connecticut DPUC Comments at 3-4; Illinois Commission Comments at 2; Iowa Comments at 1-2; Kentucky PSC Comments at 2; New York DPS Comments at 4-7; Ohio PUC Comments at 3-5; Oregon PUC Comments at 1; Texas PUC Comments at 2-3; Washington UTC Comments at 3-5; NARUC Reply Comments at 3; New Jersey DRA Reply Comments at 11; Wisconsin PSC Reply Comments at 3-4. But see Florida PSC Comments at 7-8 (suggesting that the Commission establish a "rebuttable presumption" in favor of unbundling network elements listed in section 271 of the 1996 Act instead of adopting a national list).

[196]*See, e.g.*, Ad Hoc Comments at 3; Allegiance Comments at 2-4; AT&T Comments at 39-46; Cable & Wireless Comments at 22-28; Choice One Joint Comments at 2-3; Columbia Comments at 8; CO Space Comments at 4-5; Corecomm Comments at 8-10; Covad Comments at 3-6; CPI Comments at 4-6; Excel Comments at 17-19; KMC Comments at 2-3; MCI WorldCom Comments at 4-10; Net2000 Comments at 3-7; New England Voice & Data Comments at 4, n.4; NEXTLINK Comments at 3-7; NorthPoint Comments at 1-3; OpTel Comments at 2; Prism Comments at 3-5, 9-10; Rhythms Comments at 9; TelTrust Comments at 2; TRA Comments at 9-10 Waller Creek Comments at 11-12.

[197]*See, e.g.*, NARUC Reply Comments at 3; California PUC Comments at 3-4; 7- 14; Illinois Commission Comments at 2-3; Kentucky PSC Comments at 2; New York DPS Comments at 3-7; Ohio PUC Comments at 3-5, 21; Oregon PUC Comments at 1; Texas PUC Comments at 3-5; Washington UTC Comments at 3-9.

commercially viable alternatives are available.[198] The incumbent LECs argue, on the other hand, that the Supreme Court's decision in *Iowa Utils. Bd.* requires a geographic market-by-market analysis that will ultimately not result in a national list of unbundled elements. These carriers propose that the Commission adopt national standards to be applied by state commissions on a market-by-market basis.[199]

2. Discussion

120. We adopt our tentative conclusion to identify a minimum list of network elements that should be unbundled on a national basis. Similar to New York's proposal, we also conclude, as explained below, that we must apply discrete geographic and product market exceptions to the incumbent's duty to unbundle the elements on the national list, where appropriate. We conclude that the Commission has the legal authority to adopt a national list of network elements that must be made available on an unbundled basis, and that the other factors we identify above, such as rapid introduction of competition, certainty in the marketplace, administrative practicality, and promotion of facilities- based competition, can only be furthered by adoption of a national list.

a. Legal Authority

121. The Supreme Court decision in *Iowa Utils. Bd.*, the statutory language of section 251(d)(2), and the legislative history of the 1996 Act support our authority to develop a national list of unbundled elements. In particular, the Supreme Court upheld explicitly the Commission's

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[198]New York DPS Comments at 4-5.

[199]*See, e.g.*, Ameritech Comments at 5-6, 53-65; BellSouth Comments at 12- 18, 31; GTE Comments at 20-22; SBC Comments at 15-18; US West Comments at 26- 32.

jurisdiction to adopt minimum national rules to implement each subsection of the 1996 Act.[200] Consistent with the language in the statute, the Supreme Court stated that section 251(d)(2) ". . . requires the Commission to determine on a rational basis *which network elements must be made available*, taking into account the objectives of the Act and giving some substance to the 'necessary' and 'impair' requirements."[201] The Court stated that some of the national unbundling rules the Commission adopted originally in the *Local Competition First Report and Order* might have been supported by the standard required by section 251(d)(2). The Court stated however, that because the standard was not consistently applied, it was forced to vacate Rule 319.[202] As explained above, we have adopted a limiting standard that we believe responds to the Supreme Court's concerns.[203] We have also applied the standard consistently to derive a list of network elements that must be made available on an unbundled basis nationwide.

122. In addition, we do not find that the Supreme Court decision in *Iowa Utils. Bd.* requires us to determine, on a localized state-by-state or market- by-market basis which unbundled elements are to be made available. The Commission examined the conditions in the nation as a whole to determine, in the *Local Competition First Report*

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[200] *Iowa Utils. Bd.*, 119 S. Ct. at 733.

[201] *Id.*. at 736 (emphasis added).

[202] *Id.* (citing *Local Competition First Report and Order*, 11 FCC Rcd at 15766, paras. 521-22 (requiring the incumbent LECs to unbundle their operational support systems because "competitors' ability to provide service successfully would be significantly impaired if they did not have access to the incumbent LECs' operation support system functions.")).

[203] *See supra* Section (IV)(B).

and Order, that the incumbent LECs must make available a minimum list of elements. The Commission also concluded that it would not adopt an exhaustive list of elements, but that the states would identify additional unbundling obligations based on local market conditions.[204] The Supreme Court did not take issue with this determination. The Court held that the Commission must determine on a rational basis which network elements must be made available, taking into account "the objectives of the Act and giving some substance to the 'necessary' and 'impair' requirements of section 251(d)(2)."[205] Although this language permits the Commission to undertake a market-by-market assessment of alternatives, it plainly does not mandate such an approach. Rather, it provides the Commission with the discretion to look at the nation as a whole and to identify differences in the availability of alternatives outside of the incumbent's network that may exist in discrete geographic areas.

123. However the Commission chooses to limit the incumbent LEC's duty to unbundle in accordance with the Supreme Court's opinion, Congress has charged the Commission in section 251(d)(2) with "determining what network elements should be made available for purposes of subsection [251](c)(3)."[206] We thus have the authority to identify a minimum list of network elements that must be unbundled on a nationwide basis.[207] In addition, the

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[204] *Local Competition First Report and Order*, 11 Fcc Rcd at 15624, para. 243.

[205] *Iowa Utils. Bd.*, 119 S. Ct. at 736.

[206] 47 U.S.c. § 251(d)(2).

[207] 47 U.S.C. § 251(d)(2). *See also Iowa Utils. Bd.*, 119 S. Ct. at 736 (section 251(d)(2) "requires the Commission to determine on a rational basis which network elements must be made available") (emphasis in original).

legislative history indicates that Congress specifically contemplated that the Commission would open the last monopoly bottleneck strongholds in telecommunications by requiring incumbents to share their local exchange facilities, including "the equipment with capabilities of routing and signaling calls, network capacity, and network standards."[208] This legislative history indicates that Congress expected the Commission would identify a national list of unbundled network elements that would include, at a minimum, these basic network elements.

b. Goals of the Act

124. We find that adoption of a national list of unbundled network elements furthers the statutory purpose and design of section 251(d)(2) to provide competitive LECs with access to unbundled network elements that will allow them to provide the services they seek to offer. Moreover, we find that adoption of a national list is supported by the factors we identify above as being important to further the fundamental goals of the Act.

125. *Rapid Introduction of Competition.* We find that a national list of unbundled elements will encourage the rapid introduction of competition in the greatest number of markets because it will provide competitive LECs with certainty regarding the availability of network elements. In fact, the record reflects that many competitive LECs are poised to begin providing service using unbundled elements, particularly for residential and small business customers, as soon as the elements are available with a reasonable degree of

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[208]H.R. Conf. Rep. 104-204, at 49 (1995).

certainty.[209] Thus, we believe that the certainty that adoption of a national list will bring to the market will benefit the greatest number of consumers, particularly residential and small business customers.

126. We agree with AT&T that the lack of nationwide access to unbundled elements will hinder mass market competition during the time it would take competitive LECs to construct alternative networks capable of serving all residential customers and most business customers in a community.[210] Even in areas where competitors are able to provide facilities-based service in specific wire centers, their ability to provide service on an MSA, LATA, or state-wide basis, for all classes of customers, is impaired without access to the incumbent's elements on a broader basis. A national list of unbundled elements will allow requesting carriers to

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[209] *See, e.g.*, Corecomm Comments at 2-3 ("As it expands its operations in Ameritech and Bell Atlantic's incumbent areas, Corecomm intends to make increasing use of high quality, cost-based unbundled network elements from the [incumbent LECs] to reach those residential customers that may be beyond the reach of most competitive carriers' facilities."); Covad Comments at 2 ("Covad's planned deployment by the end of 1999 will cover 51 MSAs, more than 25 percent of the nation's homes and businesses. This is a large-scale, national roll-out, based upon the nationwide availability of collocation, unbundled dedicated transport, and unbundled local loops."); McLeod Comments at 1-2 ("As of March 31, 1999, McLeodUSA provided competitive local exchange services to over 143,000 residential and small business customers, with over 395,000 lines....McleodUSA anticipates that use of unbundled network elements to provide service will increase in the future, and therefore has a substantial interest in the outcome of this proceeding."); NorthPoint Comments at 3 ("...the simple fact is that in the local markets in which NorthPoint currently offers service or intends to in the near future, the incumbent LECs are the only ubiquitous sources for loops, transport and other facilities that NorthPoint needs to provide service.").

[210] AT&T Reply Comments at 3-4.

enter local markets in a manner that will allow them to approach the incumbent LECs' historic economies of scale, scope, and ubiquity, thereby promoting rapid competition for all customers, including residential and small business customers, in all areas of the country.

127. According to the FCC *Local Competition Report*, competitors provide only about 1.8 percent of local services to end users.[211] The record in this proceeding indicates that requesting carriers have not yet been able to obtain unbundled elements on a wide-spread basis nationwide, which may have prevented competitive LECs from serving a greater number of end users. For example, only recently has unbundled switching been made available in combination with other unbundled network elements in certain states. MCI WorldCom observes that, with the availability of unbundled switching in New York, it has been able to provide local service to upwards of 60,000 residential customers since January, 1999.[212] We believe that by re-establishing a national list, with certain geographic and product market exceptions that are consistent with the standards of section 251(d)(2), we will best promote efficient, rapid, and widespread entry by carriers using unbundled network elements. Competitive market entry and service expansion on a widespread basis is a necessary precondition to construction of self- provisioned facilities.

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[211]FCC Local Competition Report at 12.

[212]MCI WorldCom Comments, Tab 1, Decl. of Judith R. Levine/Ronald J. McMurtrie, at para. 17. *See also* AT&T Reply Comments at 15-18 (stating that because for the last three years, critical unbundled network elements have been effectively unavailable because of the Eighth Circuit's decision on Rule 315(b), competition has existed only at the margins, and has been limited to portions of the highest volume customer markets.).

128. Moreover, as the Illinois Commerce Commission; California PUC, and Connecticut Department of Public Utility Control all assert, a national list will allow competition to proceed quickly because it will reduce the number of issues that the states must address in upcoming arbitrations under section 252(b) of the Act.[213] This is significant because many states will be conducting arbitrations and reviewing interconnection agreements as the initial agreements that they approved in 1996 and 1997 begin to expire.

129. We are not persuaded by Ameritech's argument that adoption of national standards containing bright-line tests, as opposed to a national list of unbundled elements, would facilitate arbitrations.[214] Using the bright- line test proposed by Ameritech is inappropriate because the test does not allow us to consider the totality of the circumstances to determine whether alternative elements are actually available as a practical, economic, and operational matter. Moreover, the resources and time that requesting carriers would be required to devote to individual regulatory proceedings designed to determine if the bright-line criteria had been met in every market would delay the introduction of competition. The outcomes of each proceeding would likely vary across the country, thereby making it more difficult for competing carriers to execute reasonably uniform national or regional business plans. We believe that a national list of elements will better allow carriers to enter the market and to expand their businesses as rapidly as possible.

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[213]Illinois Commission Comments at 2; California PUC Comments at 3-4; Connecticut DPUC Comments at 3.

[214]Ameritech Comments at 64-65.

130. As explained below, we will revisit our unbundling rules in three years. Although we recognize that due to changes in the market and new technologies, the national list will likely be modified over time, we do not find that we should delay the onset of meaningful competition while we require the incumbent LECs and the competitors to produce voluminous amounts of data and participate in multiple proceedings to determine whether alternatives to the incumbent's network are available and being used in every market. We believe that a national list (that accounts for discrete geographic and product market exceptions) that can be applied at this time, with the least amount of regulatory involvement, will allow carriers to deploy resources to provide service to the greatest number of consumers instead of conducting regulatory proceedings.

131. We note that we established recently collocation-based triggers to determine when it would be appropriate to grant incumbent LECs pricing flexibility for certain interstate access services based on the existence of competition for those services.[215] In the *Pricing Flexibility Order*, we stated that the triggers we adopted were policy determinations based on our agency expertise and our interpretation of the record before us in that proceeding. We acknowledged, however, that the use of triggers to measure competition precisely is not an exact science, particularly because we lack verifiable data from competitors concerning the deployment of their facilities. Given this constraint, and our desire not to impose heavy administrative burdens on the industry or conduct

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[215] Access Charge Reform and Price Cap Performance Review for Local Exchange Carriers, CC Docket Nos. 96-262, et al., Fifth Report and Order and Further *Notice* of Proposed Rulemaking, FCC 99-206, paras. 77-141 (rel. Aug. 27, 1999) (Pricing Flexibility Order).

protracted proceedings to determine the extent of competition, we devised pricing flexibility triggers based on "objectively measurable criteria,"[216] such as the number of collocation arrangements in a given wire center.[217] We found that it is appropriate to give incumbent LECs pricing flexibility when competitors have made an irreversible, sunk investment in facilities, and that collocation by competitors in incumbent LEC wire centers is a reliable indication of sunk investment by competitors.[218] Specifically, to obtain pricing flexibility, we required incumbent LECs to show that "*at least one* competitor relies on transport facilities provided by a transport provider other than the incumbent at each wire center listed in the incumbent's pricing flexibility petition as the site of an operational collocation arrangement."[219]

132. It is not appropriate to use these types of triggers to determine whether alternative sources of network elements are actually available as a practical, economic, and operational matter. As we explain above, the ability of one competitor to serve certain customers in a particular market is not indicative of whether, without unbundled access to the incumbent LEC's facilities, competitive LECs could provide service to other customers in the same market or to customers in other markets. While the triggers we adopted in the *Pricing Flexibility Order* allow us to determine when an incumbent LEC can re-price its services to respond to competition, they do not allow us to evaluate whether the incumbent LEC can withhold access to the inputs that requesting carriers need to provide competitive services in the first place. In order to

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[216] *Id.* at para. 84.

[217] *Id.* at para. 77.

[218] *Id.* at para. 81-86.

[219] *Id.* at para. 82 (emphasis added).

undertake this evaluation, we must consider the cost, timeliness, quality, ubiquity and operational characteristics of alternative elements. As we explain above, discerning the practical, economic, and operational viability of these alternatives is technical, complex, and subject to considerable uncertainty.[220] Based on the record before us, we do not believe that we can develop reliable triggers based on objectively measurable criteria to make this determination. In particular, the administrative difficulty associated with developing triggers that capture the cost, timeliness, quality, ubiquity, and operational factors of alternatives in every wire center throughout an incumbent LEC's service territory requires us to reject such an approach. Indeed, the Commission chose precisely to adopt triggers in the *Pricing Flexibility Order*,[221] because we found that they were administratively easy to apply. Conversely, it would not be administratively easy to apply triggers to determine which network elements the incumbent LECs must unbundle. Moreover, the use of triggers also does not allow us to evaluate whether the unbundling obligations we adopt are consistent with the goals of the Act, as the Supreme Court has required us to do.[222]

133. Moreover, a national list of unbundled network elements will facilitate the introduction of rapid competition by eliminating needless litigation that would result from unbundling requirements that differ in every market. Such litigation would require incumbent LECs, competitive LECs, and the state commissions to expend considerable time and resources to litigate issues surrounding whether a particular

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[220] *See supra* Section (IV)(B)(4)(b)(ii).

[221] Pricing Flexibility Order at para. 77.

[222] Iowa Utilis. Bd., 119 S. Ct. at 734.

unbundled network element should be available to individual carriers seeking to serve specific customers or specific areas of the state. Although there has been significant litigation over the past three years regarding the incumbent's duty to unbundle elements under section 251(c)(3),[223] we believe that re-establishing a national list, subject to the Supreme Court's mandate to include a rational limiting standard, will reduce the likelihood of further litigation and its accompanying delays and costs, in all fifty states.

134. *Promotion of Facilities-Based Competition, Investment, and Innovation.* We find that adoption of a national list will facilitate the deployment by competitors of their own facilities. Permitting competitors to obtain access to unbundled elements on a broad basis will allow these carriers to acquire sufficient customers and essential market information to enable them to determine whether construction of new facilities is justified. We believe that it is through self-provisioning their own facilities that competitive LECs will have a greater ability to serve all classes of customers.

135. Ameritech claims that the Commission "dismissed outright" the principal goal of the 1996 Act to encourage new investment and innovation by all competitors in the market when it adopted national unbundling rules.[224] According to Ameritech, the national unbundling rules adopted in 1996 protected inefficient competitors and discouraged efficient entrants from investing and innovating in telecommunications services as the Act intended.[225] Based on

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[223] *Id.* at 736.

[224] Ameritech Comments at 17.

[225] *Id.* 17-27.

the incumbents' own evidence, we find this argument lacking in credibility.

136. The incumbent LECs have submitted a market study in this proceeding, the USTA UNE Report, that details the competitive LECs' investment in their own facilities on an element-by-element basis since the passage of the 1996 Act, and *during* the time that the Commission's national unbundling rules have been in effect.[226] Although the Commission's unbundling rules have been the subject of extensive litigation, none of the parties dispute that competitors have used unbundled elements, particularly unbundled loops and transport, where these elements have been made available. Yet, the incumbents' UNE Report shows that competitors have built nearly 30,000 miles of fiber within the top 50 MSAs, serving nearly 15 percent of all commercial office buildings.[227]

137. The USTA UNE Report also states that competitors have deployed approximately 700 switches to serve medium and large business customers.[228] The report indicates that these carriers have deployed fixed wireless connections to extend their fiber networks out to many more customers.[229] The incumbents also assert that many competitors are providing advanced services by attaching their own facilities to the incumbent LEC's unbundled cooper loops.[230] Overall, the incumbents estimate that competitive LECs are offering

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[226]USTA Comments, Peter W. Huber and Evan T. Leo, UNE Fact Report (USTA UNE Report).

[227]*Id.* at 11-6. III-3.

[228]*Id.* at I-1.

[229]*Id.* at 11-4, III-10 to 12.

[230]*Id.* at VI-19-20.

service over approximately 2.5 million facilities-based lines in the incumbents' service territories.[231] As explained more fully below, these facilities are still not available broadly enough to prevent competitive LECs, in most cases, from being impaired in their ability to provide service without access to the incumbent's network. Nonetheless, the data presented by the incumbents shows significant and growing investment by the competitive LECs. Accordingly, we find no merit in the claim made by Ameritech and other incumbent LECs that unbundling elements will impede the Act's goal of encouraging new investment and innovation in telecommunications services.

138. The incumbents also claim that national unbundling requirements will discourage them from investing and innovating, particularly if they have to unbundle elements for the provision of advanced services.[232] While we desire to do nothing to discourage investment and innovation by all carriers, we note that the Commission's national unbundling policy has clearly not discouraged incumbent LECs from seeking to serve new markets. Although in the *Local Competition First Report and Order*, the Commission did not order unbundling of certain equipment used in providing advanced services, it made clear that the states could extend the incumbents' unbundling obligations as necessary to account for changes in technology and to address local conditions.[233] Incumbent LECs have therefore known since

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[231] *Id.* at III-16 (The incumbent LECs state that this total excludes US West's territory.).

[232] *See* Ameritech Comments at 25-27, BellSouth Reply Comments at 7-9; SBC Reply Comments at 27

[233] *Local Competition First Report and Order*, 11 FCC Rcd at 15619, para. 234.

1996 that they might eventually be required to unbundle elements used to provide advanced services. Moreover, last year, in the *Advanced Services Order and NPRM*, we sought specifically comment on whether to unbundle facilities used to provide advanced services.[234] Notwithstanding the fact that the incumbents have been on *Notice* that they could be required to unbundle facilities used to provide advanced services, the incumbents have announced aggressive rollout plans for xDSL service.[235] In fact, a recent financial analyst's

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[234]Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, Memorandum Opinion and Order and *Notice* of Proposed Rulemaking, 13 FCC Rcd 24012, 24092-93, paras. 180-82 (Advanced Services Memorandum Opinion and Order and NPRM), remanded US West Communications v. FCC, No. 98-1410 (D.C. Cir. Aug. 25, 1999).

[235]Today's broadband services include services based on digital subscriber line technology (commonly referred to as xDSL), and include ADSL (asymmetric digital subscriber line) services. *See, e.g.*, Communications Daily, Nov. 20, 1998, 1998 WL 10697801 (Bell Atlantic announces plans to deploy xDSL capable lines in Boston and New York City to a total of three million customers); Communications Daily, Feb. 9, 1999, 1999 WL 7578715(Bell Atlantic announces that its xDSL service will pass by 20 million households in-region by the end of 2000, with 10 or 11 million lines qualified for xDSL upgrade by that date); Communications Daily, July 29, 1999, 1999 WL 7580057 (Bell Atlantic and GTE announces that the total number of xDSL-capable lines available in-region by year's end will be 17 million, and that they will have ADSL capability installed in 550 central offices by year's end, thereby allowing it to serve potentially as many as 6.1 million DSL lines); Communications Daily, July 21, 1999, 1999 WL 7580000 (SBC announces that it had 32,000 DSL customers as of the end of 2nd quarter 1999. SBC plans to reach 10 million homes with xDSL-capable wires by the end of 1999); US West at http:// www.uswest.com/about/communicator/vol2no1/7.html (US WEST launched ADSL service in 40 in-region metropolitan areas, Jan. 29, 1998); BellSouth at http:// www.bellsouthcorp.com/proactive/documents/render/16942.html (BellSouth announced roll-out of BellSouth.Net Fast Access ADSL Internet service in 30 markets. Service began in seven key markets: New Orleans,

report indicates that advanced data services currently comprise an average of 9.9 percent of the revenues of the BOCs and GTE.[236] Although the incumbents claim that competitors have deployed more advanced services equipment than the incumbents have deployed,[237] they nevertheless acknowledge that the incumbent LECs are offering advanced services in 7 of the 10 largest MSAs and in 22 of the top 50 MSAs.[238] We find these statistics to be significant because they demonstrate that the development of competition, and the threat of losing revenue and customers to carriers offering advanced services, provides a powerful incentive for carriers to invest.

139. We therefore conclude, as the Commission did in the *Local Competition First Report and Order*, that by adopting a national list of elements, and by giving the states the flexibility to add elements as technology and local market conditions change, we will not discourage incumbent LECs from investing and deploying innovative services[239]. The incumbent LECs will have an increased incentive to reduce their operating and capital costs and to introduce new and

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Atlanta, Birmingham, Jacksonville, Raleigh, Charlotte, and Ft. Lauderdale encompassing 1.7 million customers by the end of 1998. It states that service will extend to 23 additional markets in 1999.).

[236]Daniel Reingold and Ehud Gelblum, Telecom Services - Local, Merrill Lynch & Co., July 12, 1999, at 3.

[237]To the extent that network innovations are undertaken by equipment vendors, they are not subject to the unbundling rules we adopt.

[238]USTA UNE Report at VI-19.

[239]*Local Competition First Report and Order*, 11 FCC Rcd at 15626, para. 245 ("We are not persuaded that national rules will discourage incumbent LECs from developing new technologies and services; to the contrary, based on our experience in other telecommunications markets, we believe that competition will stimulate innovation by incumbent LECs.").

innovative services that will increase the overall usage level of their networks as they face competition for all of their services. Moreover, the Commission's pricing methodology includes a risk-adjusted return on capital and economic depreciation for the incumbent as part of the forward- looking rate.[240] As we indicated above, we are also adopting a "necessary" standard that fully protects the incumbents' intellectual property associated with proprietary network elements when those elements are used by the incumbent to differentiate its products from those of its competitors.[241] We therefore do not find merit in arguments that the adoption of a list of network elements that must be unbundled nationwide will discourage innovation and investment by incumbent or competitive LECs.

140. *Certainty in the Marketplace.* We find that a national list of unbundled elements will provide uniformity and predictability that will facilitate the development and implementation of national and regional business plans by competitive LECs, thereby extending the benefits of competition for the greatest number of consumers. We agree with the California PUC that a national list will allow multi-state competitors to create a national business plan with the knowledge that a set of network elements will be available in all states.[242] Indeed, we find that the unavailability of elements on a nationwide basis would jeopardize the

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[240]*Local Competition First Report and Order*, 11 FCC Rcd at 15849-50, paras. 686-88; MCI WorldCom Comments at 9 and Tab 2, Decl. of John E. Kwoka, at para. 25.

[241]*See supra* Section IV(B)(2).

[242]California PUC Comments at 3. *See also* CPI Comments at 5; MCI WorldCom Comments at ii, 5; Net2000 Comments at 4-5.

usefulness of unbundled elements as a method of serving the maximum number of consumers.[243]

141. We also continue to believe that national unbundling requirements will provide financial markets with greater certainty regarding the elements that are available to competitive LECs. Such certainty should reduce the risk of entry, thereby making more capital available at less cost to new entrants and fledgling competitors.[244] We do not agree with Ameritech that a national list would perpetuate uncertainty in capital markets because carriers would challenge the list regardless of what elements it contains.[245] As stated above, we believe that a national list will actually reduce the risk of litigation.

142. *Administrative Practicality.* We find that a national list of unbundled elements is administratively easier for the

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[243]For example, MCI WorldCom points out that the Commission declined to order nationwide unbundling of certain elements in the *Local Competition First Report and Order*, including subloop elements and dark fiber. It states that this led to dozens of state commission arbitrations and subsequent lawsuits, and that where determinations have been made on the availability of these elements, MCI WorldCom reports that the outcomes have been inconsistent from one state to another, for reasons having nothing to do with geographic or market differences. It states that the result has been that competitive LECs have been unable to formulate any national or regional strategies that rely on the use of dark fiber or subloop elements. MCI WorldCom Comments at 7-8.

[244]*See* NorthPoint Comments at 2 ("Further, as the Commission correctly anticipated, the establishment of national requirements for unbundled elements has assisted NorthPoint in its efforts to attract capital by providing 'financial markets with greater certainty in assessing new entrants' business plans'"). The availability of a national list of elements will also provide certainty for incumbent LECs seeking to raise capital to enter markets outside of their service territories.

[245]Ameritech Comments at 64.

Commission, the states, and the industry to apply than a list that varies on a state-by-state or market-by- market basis. As we stated in the *Notice*, application of the "necessary" and "impair" standard is fact-intensive.[246] Determining the availability of practical alternatives to the incumbents' network elements on a market-by- market basis, even through the use of bright-line tests as proposed by the incumbent LECs, would potentially require the Commission or the states to analyze the availability of alternatives in almost every wire center. In addition to creating uncertainty in the market, such a proposal would consume enormous amounts of resources and time, thereby undermining the goal of the Act to bring the benefits of rapid competition to all consumers. Such an approach would also require a new analysis each time a new carrier sought to initiate service in a particular market, and would likely lead to additional litigation by adversely affected carriers.[247] We do not believe that Congress or the Supreme Court had in mind the adoption of a procedure that would impose such an undue-and unworkable- administrative burden on the Commission, the states, or the industry.

143. *Reduced Regulation*. We believe that a national list of elements that contains discrete geographic and product market exceptions will result immediately in reduced regulation. Moreover, a national framework under which elements can be removed from the national list is consistent with the deregulatory goals of the Act. Reduced regulation will occur as we remove elements from the list as requesting carriers are no longer impaired without access to those

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[246] *Notice* at para. 12.

[247] *See* MGC Comments at 8 (stating that a national list is an administrative necessity and required for business certainty).

elements, and it otherwise does not further the goals of the Act to continue requiring incumbent LECs to unbundle them.

D. Modification of the National List

1. Background

144. In the *Local Competition Order First Report and Order*, the Commission acknowledged that the rapid pace and ever-changing nature of technological advancement in the telecommunications industry made it essential that the Commission retain the ability to revise the rules as circumstances change. The Commission noted that, absent such ability, its rules might impede technological change and frustrate the 1996 Act's overriding goal of bringing the benefits of competition to consumers of local phone service. Accordingly, the Commission determined that, in addition to identifying unbundled network elements that incumbent LECs were required to make available at the time the original rules were adopted, it had the authority to identify additional or different unbundling requirements that would apply to incumbent LECs in the future.[248]

145. In the *Local Competition Order First Report and Order*, the Commission also determined that state commissions could impose additional unbundling requirements, as long as the requirements were consistent

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[248]Local Competition Order First Report and Order, 11 FCC Rcd at 15626, para. 246. The Commission also noted that its existing rules set forth a process by which incumbent LECs could request a waiver of the requirements adopted in the *Local Competition First Report and Order*. *Id.* at 15625, para. 244.

with the 1996 Act and our regulations.[249] The Commission codified this grant of authority in section 51.317 of its rules.[250] The Commission believed that the states' authority to impose additional requirements, combined with its ability to modify the national unbundling rules, provided the necessary flexibility to accommodate any truly unique conditions that might exist.[251] The Commission, however, did not address the issue of whether states could remove elements from the national list.

146. In the *Notice* we sought comment on whether the Commission should adopt an approach that would allow sunset or modification of the section 253(c)(3) unbundling obligations as technology and market conditions evolve over time.[252] We noted that, under our rules, states have the authority to impose additional unbundling requirements.[253]

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[249]*Id.* We based this grant of authority on 47 U.S.C. 252(e)(3), which states: "Preservation of Authority. - Notwithstanding paragraph (2), but subject to section 253, nothing in this section shall prohibit a State commission from establishing or enforcing other requirements of State law in its review of an agreement, including requiring compliance with intrastate telecommunications service quality standards or requirements." 47 U.S.C. 252(e)(3). Section 252(e)(3) requires interconnection agreements to be submitted to the state commission for approval.

[250]47 C.F.R. 51.317.

[251]Local Competition Order First Report and Order, 11 FCC Rcd at 15625, para. 244.

[252]*Notice* at paras. 11, 36.

[253] *Id.* at para. 14 (citing 47 C.F.R. 51.317; *Local Competition First Report and Order*, 11 FCC Rcd at 15641-42, paras. 281-83). In the *Notice*, we noted that the Supreme Court's analysis of section 251(d)(2) might have a bearing on Rule 51.317, but that the Court did not directly address that issue. We also noted that the Commission asked the Eighth Circuit for a voluntary remand of Rule 51.317 so that the Commission may consider it in light of the Supreme Court's decision. *Notice* at 14, n.21. In requesting a

We sought comment on whether section 251(d)(2), or any other provision of the Act, provides the Commission with the authority to delegate to the states the responsibility of removing network elements from any national requirement.[254] We sought comment on proposals for a mechanism for removal, including which party should bear the burden of proof.[255] We asked whether the Commission should consider a phase-out period for network elements removed from the national list. Further, we asked whether we should institute a period of time during which incumbents could not seek removal of network elements from our new unbundling rules.[256] We also asked whether we could adopt a "sunset" provision.[257]

147. Several of the state commissions argue that they have the authority to add and subtract elements from the

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remand from the Eighth Circuit, the Commission did not attempt to defend the substance of Rule 51.317. Nothing in this Order interferes or is intended to interfere with the Eighth Circuit's jurisdiction over this matter.

[254] *Notice* at paras. 14, 38. As part of this inquiry, we asked if the Commission should be able to review state decisions to remove network elements. *Id.* at para. 14.

[255] *Id.* at para 37. We asked if there was a modification of an unbundling requirement whether an incumbent LEC should be required to continue to unbundle a particular element identified in an interconnection agreement until the date that the agreement expired. We also asked whether an incumbent LEC should be able to refuse to unbundle a network element that is no longer required when negotiating a new contract with other parties. *Id.* at para. 36.

[256] *Id.* at para. 37.

[257] *Id.* at paras. 39-40.

national list,[258] while the Vermont and Illinois state commissions argue that the Commission should establish a set of unbundling obligations to which the state may add additional unbundling obligations.[259] BellSouth argues that states should be able to add or remove unbundled elements in a particular zone.[260] SBC and GTE oppose allowing the states to add or subtract elements.[261] US West argues that states should be able to determine whether network elements no longer need to be unbundled, but that they not be allowed to add network elements.[262] The vast majority of competitive

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[258]Iowa Comments at 2 ("Network elements should be added or removed by the state commissions pursuant to the record made before the commissions in proceedings to arbitrate and modify interconnection agreements."); New York DPS Comments at 5-6; Ohio PUC Comments at 3-5; Oregon PUC Comments at 1; Texas PUC Comments at 3 ("It is the Texas PUC's belief that the Commission has the authority to allow states to have substantial discretion in the addition or removal of network elements from the presumptive national list.); Washington UTC Comments at 7 (claiming that "the Commission could implement something analogous to state commission authority to 'subtract' elements from the federal list."); NARUC Reply Comments at 3.

[259]Vermont PSB Comments at 4-5 (arguing that the Act "establish[es] a floor beneath which State regulatory bodies may not go, but not a ceiling on State efforts to encourage competition"(emphasis in original)); Illinois Commission Comments at 4. *See also* Kentucky PSC Comments at 1-2 (arguing that "state commissions should evaluate issues involving [unbundled network elements] not specifically prescribed by the [Commission]"); California PUC Comments at 9, 13 (urging the Commission to delegate to the states the authority to remove network elements added by the states); Connecticut DPUC Comments at 4.

[260]BellSouth Comments at 29-30. As part of its proposals, BellSouth argues that the Commission should establish a "strong presumption" against adding network elements to the list.

[261]SBC Comments at 18-19; GTE Comments at 29.

[262]US West Comments at 29-32.

LECs that commented in this proceeding, as well as NTIA and ALTS, argue that the states should be allowed to add, but not to remove, elements from the national list.[263]

2. Discussion

a. Modification of the National List by the Commission

148. As discussed above, section 251(d)(2) grants the Commission authority to establish a national list of network elements that are subject to the unbundling requirements of

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[263]NTIA Comments at 42, n.114; ALTS Comments at 5-6; CoreComm Comments at 10-12; e.spire Joint Comments at 7; Joint Consumer Advocates Comments at 5-6; McLeod Comments at 3; MGC Comments at 7; Net2000 Comments at 6; NEXTLINK Comments at 5-7; OpTel Comments at 3, 14; Prism Comments at 10; Qwest Comments at 40-42; RCN Comments at 4-5; AT&T Reply Comments at 67; CoreComm Reply Comments at 7; Level 3 Reply Comments at 12; MCI WorldCom Reply Comments at 10- 11;RCN Reply Comments at 10. *See also* Covad Comments at 6 (opposing state authority to remove network elements from the national list) Metro One Comments at 19 (arguing that the Act does not provide the Commission with the authority to delegate to states the responsibility of removing network elements from the national list); Cable & Wireless Comments at 45-46 (opposing state authority to remove network elements from the national list). But see TRA Comments at 29-31 (arguing that for the first two years the Commission should review petitions, but, subsequently, state commissions should be able to add or remove network elements pursuant to the case law established during the first two years); Excel Comments at 19 (stating that it "would not object to rules giving the States a significant role in determining whether to remove [unbundled network elements] from the mandatory list after the initial three-year period"); ALTS Reply Comments at 6 ("The Commission only should consider adopting a mechanism for state-by-state removal of [unbundled network elements] from the national list after a two year period during which the Commission's unbundling rules are allowed to be given their full effect . . . .").

the Act.[264] Given the rapid changes in technology, competition, and the economic conditions of the telecommunications market, we expect that the list of unbundled network elements that meets the standards of section 251(d)(2) will change over time. We therefore agree with commenters that we will need to reevaluate our national rules periodically.[265]

149. The need to reassess periodically the availability of elements outside the incumbent's network is borne out by the changes that have taken place since we first adopted our unbundling rules three years ago. For example, the evidence in this proceeding indicates that competition is developing in some geographic markets for certain customer groups, (*e.g.*, medium and large businesses in major metropolitan areas). Only by periodically reevaluating the availability of alternative network elements outside the incumbent's network can we truly determine whether the incumbent's

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[264]*See supra* Section (IV)(D).

[265]California PUC Reply Comments at 13; New York DPS Comments at 1,7; ALTS Comments at 6; CompTel Comments at 54; Cox Comments at 37-38; KMC Comments at 27; Level 3 Comments at 24; MCI WorldCom Comments at 11; McLeod Comments at 3; RCN Comments at 27; Rhythms Comments at 3, 28; AT&T Reply Comments at 51; KMC Reply Comments at 27; Rhythms Reply Comments at 14. *See also* Allegiance Comments at 24; Cable & Wireless Comments at 46; GTE Reply Comments at 79-80. But see OpTel Comments at 14-15 (arguing it is premature to establish mechanisms for removal); Sprint Comments at 40 (arguing that it is premature to address this issue at this time). Sprint is also concerned that "if the Commission gives any encouragement at all to [a] waiver option, it is likely to be inundated with such requests." Sprint Comments at 41. The California PUC recommends that the review process begin three years after the adoption of a minimal list. California PUC Reply Comments at 13. Allegiance recommends that removal be considered on an incumbent LEC-by-incumbent LEC basis. Allegiance Comments at 25.

network should be unbundled in order to meet the requirements of section 251 and the goals of the Act. We therefore conclude that as market conditions change and new technologies develop, we will periodically revisit the issue of what elements are subject to the unbundling obligations of the Act.

150. Although we will periodically revisit our unbundling rules, we believe that it would be inconsistent with our overall policy goals to consider petitions to remove elements from the national list immediately upon adoption of this order.[266] Specifically, as discussed above, the rules we adopt today seek to provide a measure of certainty to ensure that new entrants and fledgling competitors can design networks, attract investment capital, and have sufficient time to attempt to implement their business plans.[267] Entertaining, on an *ad hoc* basis, numerous petitions to remove elements from the list, either generally or in particular circumstances, would threaten the certainty that we believe is necessary to bring rapid competition to the greatest number of consumers. In addition, entertaining numerous petitions on an *ad hoc* basis would undermine the goal of implementing unbundling rules that are administratively practical to apply.

151. We expect to reexamine our national list of network elements that are subject to the unbundling obligations of the

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[266]*See* ALTS Comments at 6-7; MCI WorldCom Comments at 11; Sprint Comments at 41 (arguing for a five year "quiet period"); ALTS Reply Comments (recommending a two-year "gestation" period); Rhythms Reply Comments at 14 (arguing that a two-year period may be too short).

[267]Sprint Comments at 41. *See also* Excel Comments at 19.

Act every three years.[268] We note that many of the first interconnection agreements negotiated in 1996 are now approaching expiration of their typical three-year terms and will be eligible for renewal. We expect parties to implement the requirements of this Order as they negotiate new interconnection agreements. We find that a similar three-year time frame for reevaluating the unbundling obligations is warranted to provide competitors with reasonable certainty for a period of time that is sufficient time to implement their plans. Revisiting our rules in three years should provide sufficient certainty to the carriers and capital markets and should provide carriers with sufficient time to implement their plans.[269]

152. We decline to adopt a rule mandating that elements will not be subject to unbundling after a date certain in the future. Several parties have suggested that it would be extremely difficult for us to predict a date at which a particular network element would no longer meet the "necessary" and "impair" standards of section 251(d)(2).[270] As noted by the Illinois Commission, in the three years since

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[268]Accord California PUC Reply Comments at 13; CO Space Comments at 16; Excel Comments at 19; MCI WorldCom Comments at 13 and Tab 2, Decl. of John E. Kwoka, para. 38; AT&T Reply Comments at 51.

[269]*See* ALTS Comments at 7 (advocating a two year review cycle). This is consistent with the MFJ's tri-ennial review process. The review may begin after approximately only two years of experience so that it can be completed in three-year intervals.

[270]Illinois Commission Comments at 15-16; Choice One Joint Comments at 27; MCI WorldCom Comments at 12; OpTel Comments at 14; RCN Comments at 26; Sprint Comments at 42-43; KMC Reply Comments at 27-28; Sprint Reply Comments at 12. *See also* CoreComm Comments at 40; KMC Comments at 27-28; Level 3 Comments at 24; California PUC Reply Comments at 14; Pilgrim Reply Comments at 12.

the Act was implemented, no BOC has demonstrated that it satisfies the competitive checklist in section 271. In 1996, few would have expected that three years later BOCs would not have qualified for section 271 approval. This suggests that it would be similarly very difficult for us to predict, at this time, the date at which incumbent network elements would no longer be subject to unbundling obligations under section 251. Moreover, we note that we find no basis in the record before us to make predictive judgments about when an unbundling standard will no longer be met for particular network elements. Thus, at this point in time, we do not have enough information and experience to determine what events would lead to an automatic sunset of one of our unbundling requirements. Accordingly, at this time, we decline to adopt a sunset provision for removing network elements from the national list adopted in this Order.

b. Modification of the National List by the States

153. We agree with commenters that section 251(d)(3) provides state commissions with the ability to establish additional unbundling obligations, as long as the obligations comply with subsections 251(d)(3)(B) and (C).[271] Section 251(d)(3) states that:

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[271]California PUC Comments at 7-8; Washington UTC Comments at 6-7; Ameritech Comments at 48-49; NEXTLINK Comments at 6, n.17; NTIA Comments at 42; Allegiance Reply Comments at 13 (quoting 47 U.S.C.
§ 251(d)(3)); MCI WorldCom Reply Comments at 12-13; NARUC Reply Comments at 4; Washington UTC Reply Comments at 5-6. But see SBC Comments at 19 (arguing that section 251(d)(3) prevents states from adding network elements to the list).

> In prescribing and enforcing regulations to implement the requirements of this section, the Commission shall not preclude the enforcement of any regulation, order, or policy of a State commission that-
>
> (A) establishes access and interconnection obligations of local exchange carriers;
>
> (B) is consistent with the requirements of this section; and
>
> (C) does not substantially prevent implementation of the requirements of this section and the purposes of this part.[272]

154. This section of the statute allows state commissions to establish access obligations of local exchange carriers that are consistent with our rules implementing section 251.[273] We believe that section 251(d)(3) grants state commissions the authority to impose additional obligations upon incumbent LECs beyond those imposed by the national list, as long as they meet the requirements of section 251 and the national policy framework instituted in this Order. As explained below however, we find that state-by-state removal of elements from the national list would substantially prevent implementation of the requirements and purposes of this section of the Act.

155. Section 51.317 of the Commission's rules codifies the standards state commissions must apply to add elements to the national list of network elements we adopt in this

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[272]47 U.S.C. §251(d)(3).

[273]California PUC Comments at 8; Washington UTC Comments at 6; Allegiance Reply Comments at 13-14. But see GTE Comments at 29; SBC Comments at 18-19.

Order.[274] In its current form, Rule 51.317 reflects the Commission's interpretation of the necessary and impair standards adopted in the *Local Competition First Report and Order*. Inasmuch as we have modified the "necessary" and "impair" standard to respond to the Supreme Court's directive, we must also amend Rule 51.317 to reflect the new standards. Accordingly, we modify Rule 51.317, to bring it into compliance with our new standards and the Supreme Court's decision. Modification of this rule will enable state commissions to add additional unbundling obligations consistent with sections 251(d)(3)(B) and(C) of the Act.[275]

156. We agree with the California PUC that states have the authority to remove network elements *added by the states*. Thus, if a state commission, pursuant to section 251(d)(3), adds a network element to the list of network elements an incumbent LEC must provide, state commissions also have the authority subsequently to remove those elements they add.[276] As discussed above, section 251(d)(3)(A) allows state commissions to impose additional unbundling obligations as long as they comply with subsections 251(d)(3)(B) and (C). If a state commission determines that the additional unbundling obligations it imposed no longer comply with section 251, it must remove those obligations pursuant to section 251(d)(3). Beyond ensuring that removal of those state-imposed obligations are consistent with sections 251 and 253 of the Act, the Commission has no authority to prevent a state from removing a state-imposed unbundling obligation.

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[274]47 C.F.R. § 51.317

[275]Rule 51.317 also codifies the standard under which this Commission will consider which network elements must be unbundled. *See* Appendix C.

[276] California PUC Comments at 9; California PUC Reply Comments at 13.

Furthermore, state commissions that have imposed additional unbundling requirements, pursuant to section 51.317 of our rules, will need to periodically revisit such decisions to determine whether such decisions continue to comply with the standards articulated in this Order.

157. We conclude that, at this time, removing network elements from the unbundling obligations established in this Order on a state-by-state basis would not be consistent with the goals of the 1996 Act. Specifically, in this proceeding, we have examined each network element identified previously by the Commission or by the parties, and we have made an affirmative finding as to whether or not the particular element now satisfies the unbundling standards of the Act as clarified by the Supreme Court. Moreover, we have considered how unbundling these elements will affect the development of competition in the local markets as contemplated by Congress, and whether unbundling particular elements will further the goals of the Act. Indeed, we have found that unbundling particular network elements is necessary to further the goals of the Act. Consequently, at this time, state decisions to remove these network elements from the national unbundling obligations would "substantially prevent implementation of the requirements of section 251," as prohibited by subsection 251(d)(3)(C).

158. Furthermore, we find that there are compelling policy reasons for not removing elements from the national list on a state-by-state basis at this time.[277] Unbundling

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[277]Covad Comments at 7. Allegiance suggests that once the Commission has gained some experience with removing elements from the national list that it might be possible to formulate guidelines and turn the process over to the states, Allegiance Comments at 25. This would be an appropriate inquiry when this Commission reviews the national list in three

obligations that vary from state to state in the near future would substantially undermine the reasons discussed above for implementing a national list in the first instance.[278] We agree with commenters that argue that state-by-state removal of network elements from the national list, at least in the near future, would lead to greater uncertainty in the market and would hinder the development of competition.[279] As discussed above, we have determined that national unbundling rules promote competition in telecommunications market by guaranteeing that a specific set of network elements will be available nationwide for a minimum amount of time.[280]

159. We agree with the California PUC and other state commissions that having a guaranteed list of network elements provides enough certainty to allow competitive LECs to develop and implement regional and national business plans.[281] Creating certainty and predictability in the market will also benefit competition by enabling competitors to raise capital at lower cost to create and enhance their

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years. *See supra* para. 151.

[278]CompTel Comments at 53; Cable & Wireless Comments at 45-46; CoreComm Comments at 9, 11-12; MGC Comments at 7; Net 2000 Comments 5-7; NEXTLINK Comments at 5-6; CoreComm Reply Comments at 7. *See also supra* Section (IV)(D).

[279]Illinois Commission Comments at 3; Kentucky PSC Comments at 2; ALTS Comments at 6; CompTel Comments at 53; CoreComm Comments at 9; NTIA Comments at 42, n.114; CoreComm Reply Comments at 9.

[280]*See* Connecticut DPUC Comments at 3 (arguing that a minimum national list should facilitate competition by minimizing new entrant's cost by taking advantage of economies of scale as they enter multiple local markets); Kentucky PSC Comments at 2; MGC Comments at 6.

[281]California PUC Comments at 3; Kentucky PSC Comments at 2; CoreComm Comments at 9; California PUC Reply Comments at 13.

networks.[282] If each state could remove immediately the unbundling obligations established in this Order, competitors would not have the benefit of knowing how long an element would be available on an unbundled basis in any given locale. The resulting uncertainty would frustrate the ability of carriers to plan and implement competitive entry strategies developed to serve customers on a regional or national basis.

160. We also agree with commenters that state-by-state removal of network elements from the national list would complicate negotiation of interconnection agreements and would most likely lead to increased litigation.[283] Indeed, it could force competitive LECs, each time they seek to enter into an interconnection agreement, to demonstrate that the identified elements continue to meet the standards of the Act.[284] Once an incumbent LEC is able to convince a state commission that the element no longer meets our unbundling standard, the ruling would likely set a precedent for other LECs. In addition, the possibility that a state decision in one interconnection proceeding could affect all interconnection agreements would require competitive LECs to monitor the status of these arbitrations even if they are not participants in the arbitration. We therefore agree with the Illinois Commission that having only this Commission remove

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[282]MGC Comments at 7; NorthPoint Comments at 2.

[283]Illinois Commission Comments at 4; CoreComm Comments at 9; Covad Comments at 7-8, 27; MCI WorldCom Comments at 6-7; MGC Comments at 8; NEXTLINK Comments at 6; Qwest Reply Comments at 42.

[284]GSA Comments at 4 (arguing that uniform standards eliminate "the need to establish basic requirements for unbundling in each instance"); Net2000 Comments at 3 (claiming that "uniform nationwide rules would avoid re- litigation of the same issue in dozens of jurisdictions"); Qwest Comments at 41. *See also* Prism Comments at 4; KMC Reply Comments at 2.

elements from the national list makes it easier for the states to resolve disputed issues during inter- carrier negotiations and arbitrations.[285]

161. We believe that incumbent LECs have more of an incentive than competitive LECs to challenge the unbundling obligations set forth in this Order.[286] In addition to the delay and uncertainty created by litigating the unbundling obligations of incumbent LECs, state commissions, as well as incumbent LECs and competitors, would be faced with the additional costs of litigation.[287] Many state commissions and small carriers have limited resources and would be unduly burdened if they were have to finance on-going litigation of

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[285] Illinois Commission Comments at 4; Connecticut DPUC Comments at 3. *See also* California PUC Comments at 3-4 (stating that a national list "facilitates the arbitration process in individual states"); GSA Comments at 4 (claiming that "uniform unbundling standards will help state regulators to conduct arbitrations . . . without the need to establish basic requirements for unbundling in each instance"); NorthPoint Comments at 2 (stating that "national requirements have significantly eased the burden of interconnection negotiations and arbitrations for NorthPoint"); Qwest Comments at 39 (citing *Local Competition First Report and Order*, 11 FCC Rcd at 15,528, para. 56); Qwest Reply Comments at 42; Rhythms Reply Comments at 13 (arguing that a national list will streamline the state arbitration process).

[286] CoreComm Reply Comments at 9. *See also* Qwest Comments at 41-42.

[287] Prism Comments at 4-5; Qwest Comments at 41; CoreComm Reply Comments at 3. *See also* Allegiance Reply Comments at 3-4 (stating that the Commission's national rules "eliminated the need to litigate in state after state an incumbent LEC's obligation to offer access to loops and other particular network elements that facilities-based [competitive LECs] need to offer service"); CoreComm Comments at 9; Covad Comments at 7-8, 27; MGC Comments at 7-8; Sprint Reply Comments at 12.

the unbundling rules.[288] Moreover, as several state commenters and NARUC note, section 252(e)(6) appears to limit review of state commission decisions to federal district court.[289] Thus, each state decision could eventually lead to litigation in the federal courts, creating even more uncertainty and further delaying the benefits of competition to consumers.

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b. Proprietary Concerns Associated with the Loop

180. In the *Local Competition First Report and Order*, the Commission concluded that the technology associated with the loop is not proprietary in nature.[336] Parties in this proceeding have not identified any proprietary concerns associated with unbundled loops, and we find none. We therefore apply the "impair" standard of section 251(d)(2), rather than the "necessary" standard, to determine whether loops are subject to the unbundling obligations of the Act.

c. Unbundling Analysis for the Loop in General

181. We require incumbent LECs to provide unbundled access to loops nationwide. The record demonstrates that lack of access to unbundled loops impairs a carrier's ability to provide the services it seeks to offer because requiring carriers to self-provision loops would materially raise entry

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[288] ALTS Comments at 6; Covad Comments at 7-8, 27; TRA Comments at 31. *See also* Allegiance Comments at 3.

[289] Iowa Comments at 3; Florida PSC Comments at 2-5; NARUC Comments at 3-4; Texas PUC Comments at 5.

[336] *Local Competition First Report and Order*, 11 FCC Rcd at 15694, para. 388.

costs, delay broad-based entry, and limit the scope and quality of the competitor's offerings. We conclude that neither self-provisioning loops nor obtaining loops from third-party sources is an adequate alternative for loops that a carrier can obtain from an incumbent LEC under the section 251(c) unbundling obligation. We analyze the obligation to unbundle separable elements of the loop, such as inside wire, when we discuss subloop unbundling, below. We defer a decision on whether to unbundle the high frequency portion of the loop to a further proceeding.

182. Cost and Timeliness. We agree with the argument that self-provisioning is not a viable alternative to the incumbent's unbundled loops because replicating an incumbent's vast and ubiquitous network would be prohibitively expensive and delay competitive entry.[337] We find the reasons for unbundling the loop that the Commission articulated in the *Local Competition First Report and Order* are still valid three years later. In that order, the Commission recognized that, without access to unbundled loops, competitors would need to invest immediately in duplicative facilities in order to compete for most customers, and that such investment and construction would likely delay, if not prohibit, market entry and postpone, perhaps indefinitely, the benefits of telephone competition for consumers. Moreover, the Commission found that without access to unbundled loops, competitive LECs would be required to sink a large initial investment in loop facilities before they had a customer

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[337]AT&T Comments at 63-64; Covad Comments at 32; Focal Comments at 6; Qwest Comments at 59-61; RCN Comments at 15; Sprint Comments at 29. *See also* MCI WorldCom Comments at 43 (loops comprise 44% of ILEC network investment); *Local Competition First Report and Order*, 11 FCC Rcd at 15690, para. 378 n.818 (Local loop plant comprises approximately $109 billion.).

base large enough to justify such an expenditure, thereby increasing the risk of entry and raising the competitive LEC's cost of capital.[338] By contrast, permitting a competitor to purchase unbundled loops from the incumbent LEC allows the competitive LEC to build facilities gradually, and to deploy loops for its customers where it is efficient to do so.[339]

183. Nothing in the record of this proceeding leads us to a different conclusion. To the contrary, we find that, as a practical matter, building loop plant continues to be, in most cases, prohibitively expensive and time- consuming. Because of the size of their networks, incumbent LECs enjoy advantages of scope that competitors cannot replicate.[340] We find that it would be unreasonable to expect a competitive LEC to invest the large sums of capital needed to build out ubiquitous loop plant before the competitive LEC has established a substantial and secure customer base. Unlike switches, which can be scaled to need, relocated if the business fails to develop, and which can accommodate a fluctuating customer base, much of the loop is often dedicated to a particular location. In addition, if the competitive LEC loses the customer back to the incumbent or to another competitor, the competitive LEC would probably

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[338] *Local Competition First Report and Order*, 11 FCC Rcd at 15690, para. 378.

[339] *Id.* at 15690, para. 378.

[340] *See* Illinois Commission Comments at 11-12; ALTS Comments at 36-37; AT&T Comments at 62-66; CompTel Comments at 34-35; Covad Comments at 32; Focal Comments at 6-7; MCI WorldCom Comments at 43; Sprint Reply Comments at 6.

bear the full loss of its sunk investment in the redundant loop.[341]

184. We disagree with incumbents' assertions that we should not unbundle high-capacity loops because competitive LECs have successfully self-provisioned loops to certain large business customers. According to these commenters, the call concentration and revenue potential of "high-capacity" lines (DS1 and higher) make self-provisioning high-capacity lines an economically viable alternative to the incumbent LECs' unbundled high-capacity loops.[342] Building out any loop is expensive and time-consuming, regardless of its capacity.[343] That some competitive LECs, in certain instances, have found it economical to serve certain customers using their own loops suggests to us only that carriers are unimpaired in their ability to serve those particular customers. This evidence tells us nothing about the customer the competitor would like to serve but cannot because the cost of building a loop from the customer premises to the competitive LEC's switch is prohibitive.

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[341]In theory, the entrant could lease the loop to another competitive LEC, if one exists, but the other competitor might have its loop needs met by the incumbent LEC.

[342]*See* Ameritech Comments at 101-102; Bell Atlantic at 37-39; SBC Comments at 23-25; U S West comments at 36-40. Several of these parties cite the USTA UNE Report at III-3 and III-16 (stating that competitive LEC fiber serves 15% of all commercial office buildings and between 9% and 18% of all business lines from dense wire centers with collocation by one or more competitive LECs.).

[343]For example, assuming the availability of existing conduit and pole space, the estimated cost for New England Voice & Data to install its own fiber is $46,680 per mile for a 96 fiber cable. Letter from Thomas Jones, on behalf of New England Voice & Data, LLC, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98, at 6 (filed July 15, 1999).

185. For similar reasons, we reject BellSouth's proposal that we not require incumbent LECs to unbundle larger business loops in Special Access Pricing zones 1 and 2.[344] Because of the expense inherent in building loops, we find that it would be extremely difficult for competitive LECs to overbuild the ubiquitous loop plant that the incumbents have built up over decades, even to serve businesses in urban districts. The enormous sunk investment required to install loops would inevitably lead to competition in patches, rather than the seamless competitive service of a fully competitive market. Moreover, we find that using Special Access Pricing zones, as recently modified by the Commission, would provide incumbent LECs with discretion to define their own loop unbundling obligations.[345] We agree with MCI WorldCom that the Special Access Pricing zone approach would grant incumbent LECs latitude to "change their methodologies for defining zones to upset their competitor's

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[344]BellSouth Comments at 64-66; BellSouth Reply Comments at 37-38.

[345]Incumbent LECs generally proceed through a three step process to assign central offices to zones within a given study area. In the first step, an incumbent LEC ranks its wire centers in order of decreasing traffic density, based on some measure of density chosen by the incumbent LEC. In the second step, the incumbent LEC sets breakpoints within the zone density ranking to partition the wire centers into zones and finally, an incumbent LEC further adjusts the zones as it sees fit, based on geographic contiguity or community of interest reasons. *See* Expanded Interconnection with Local Telephone Company Facilities, CC Docket No. 91-141, Amendment of the Part 69 Allocation of General Support Facility Costs, CC Docket No. 92-222, Report and Order and *Notice* of Proposed Rulemaking, 7 FCC Rcd 7369 (1992) (Expanded Interconnection Order), vacated in part and remanded, Bell Atlantic v. FCC, 24 F.3d 1441 (1994); First Reconsideration, 8 FCC Rcd 127 (1993); Second Reconsideration, 8 FCC Rcd 7341 (1993); Second Report and Order, 8 FCC Rcd 7374 (1993); Memorandum Opinion and Order, 9 FCC Rcd 5154 (1994), remanded, Pacific Bell v. FCC, 81 F.3d 1147 (1996); 47 C.F.R. § 61.38(b)(4).

business plans."[346] We find that premising an incumbent LEC's loop unbundling obligation on a geographic boundary defined, to a large degree, by the incumbent LEC itself could allow an incumbent LEC to minimize its unbundling obligation, and would not respond to a requesting carrier's need for access to unbundled loops.

186. In addition to the large costs of building loop plant, we agree with commenters in this phase of the proceeding that overbuilding the incumbent LEC's loops would embroil the competitor in lengthy rights-of-way disputes, and would require the unnecessary digging up of streets.[347] Thus, we find that even if competitors were able to finance the replication of the incumbents' loop plant, construction of new facilities would - at the least - materially delay competitors' ability to bring their services to consumers. Such delays would frustrate the competitor's ability to offer timely service to prospective customers. Although competitive LECs have successfully constructed loops in some circumstances, we find that the cost, risk, disruption, and delay of self- provisioning loop plant would, for many consumers, foreclose the benefits of competition.[348]

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[346]MCI WorldCom argues that where a requesting carrier plans to purchase unbundled [elements], the incumbent LEC could change its methodology for ranking central office traffic density in such a way that the central office changed zones, and the incumbent LEC was no longer required to offer the [element] to requesting carriers. *See* Letter from Chuck Goldfarb, Director, Law and Public Policy MCI WorldCom, to Larry Strickling, Chief, Common Carrier Bureau, CC Docket No. 96-98, at 7 (filed August 9, 1999).

[347]*See, e.g.*, AT&T Comments at 63-64; Focal Comments at 6; Qwest Comments at 60.

[348]*See* ALTS Reply Comments at 18-20; Level 3 Reply Comments at 3; RCN Reply Comments at 6; Qwest Reply at 50.

187. Moreover, in the *Local Competition First Report and Order*, the Commission specified that the definition of the loop includes various grades of loops to allow transmission of digital signals needed to provide multiple services and DS1-level signals.[349] The Commission reasoned that the ability to offer various functions in competition with incumbent LECs could benefit small entities serving niche markets.[350] We continue to believe that access to these high-capacity lines is necessary for ubiquitous deployment of high-speed services, including high-speed Internet access. We therefore agree with competitive LECs that failing to assure access to high- capacity loops would impair their ability to provide the services that they seek to offer in broadband service markets.[351]

188. Ubiquity and Quality. We disagree with parties that argue that mobile telephones and fixed wireless offer an alternative to the incumbent's loop, and that loops therefore should not be unbundled.[352] Although we find these technologies promising, we conclude that they are not yet viable alternatives to the incumbent's wireline loop facilities. In particular, we find that alternative loop technologies are not as widespread as the incumbent's ubiquitous network. These alternatives do not offer the same functionality as

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[349]In the *Local Competition First Report and Order*, the Commission stated that its definition of the loop "... includes, for example ... DS1-level signals." *Local Competition First Report and Order*, 11 FCC Rcd 15691 at para. 380.

[350] *Id.* at 15691, para. 380.

[351]*See, e.g.*, CompTel Comments at 32-34; e.spire Joint Reply Comments at 16; RCN Comments at 16.

[352]Ameritech Comments at 103-105; Bell Atlantic Comments at 36-39; BellSouth Comments at 67-75; GTE Comments at 66-67; SBC Comments at 25-30; US West Comments at 37.

wireline service, and the data capabilities of these mobile services are generally inferior to wireline loops' data transmission capabilities. Cellular and PCS telephone footprints, though expanding, are not ubiquitous. Indeed, millions of Americans are not yet served by mobile wireless carriers.[353] Moreover, the sound quality of cellular and PCS service is not always equal to wireline service.[354] Fixed wireless cannot yet offer more than four lines, or high-speed Internet connection.[355]

189. We also disagree with the incumbent LECs' argument that cable television service offers a viable alternative to the incumbent's unbundled loop.[356] Cable service is largely restricted to residential subscribers, and generally supports only one-way service, not the two-way communications telephony requires.[357] Moreover, we conclude that declining to unbundle loops in areas where cable telephony is available would be inconsistent with the Act's goal of encouraging entry by multiple providers. Given that neither mobile nor fixed wireless can yet replace wireline service, if we were to take the incumbents' approach, consumers might be left to a choose between only the cable company and the incumbent LEC.

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[353]*See* AT&T Comments at 67-72; Illinois Commission Comments at 11; ALTS Comments at 37; Level 3 Comments at 15.

[354]AT&T Comments at 67-69. Covad points out that xDSL high-speed data service cannot be provided over cellular or PCS. Covad Reply Comments at 8.

[355]AT&T Comments at 69-70.

[356]*See*, Ameritech Comments at 103-05; Bell Atlantic Comments at 36; BellSouth Reply Comments at 38-39; GTE Comments at 68-70; SBC Comments at 26- 28; US West Comments at 37-38.

[357]AT&T Comments at 70-72.

190. Loops Capable of Providing High-Speed Data Services. We conclude that permitting incumbents to deny access to basic loops stripped of accreted devices, i.e., "conditioned" loops, would preclude the ability of competitors to offer high-speed data services. Such unencumbered copper wire is necessary for requesting carriers to provide most types of xDSL service.[358] While some "flavors" of xDSL can be provided over loops with a limited number of impediments, as a general rule the quality of such service - particularly the speed - is significantly diminished, compared to the service provided over unencumbered wires.[359] DSL-capable loops provide end users with broadband data transmission, which allows rapid access to the Internet.[360] Unbundling basic loops, with their full capacity preserved, allows competitors to provide xDSL services. This in turn will foster investment, innovation, and competition in the local telecommunications marketplace. Without access to these loops, competitors would be at a

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[358]*See, e.g.*, Covad Reply Comments at 14; NorthPoint Comments at 14. As we explained in our recent Advanced Services First Report and Order and FNPRM, xDSL technology provides multiple benefits to the consumer that cannot be achieved with traditional analog transmission. The use of xDSL modems allows transmission of data over the copper loop at vastly higher speeds than can be achieved with analog data transmission. Moreover, combining xDSL technology with packet switching permits more efficient use of the network because information generated by multiple users can be sent over a telecommunications facility that in a circuit-switched environment may be dedicated to only one customer for the duration of a call. In addition, the customer can potentially make ordinary voice calls over the public switched network at the same time he or she is using the same line for high-speed data transmission. Advanced Services First Report and Order and FNPRM, 14 FCC Rcd at 4766-67, paras. 9-10.

[359]Newton's Telecom Dictionary at 38-39.

[360]Advanced Services First Report and Order and FNPRM, 14 FCC Rcd at 4767, para. 10.

significant disadvantage, and the incumbent LEC, rather than the marketplace, would dictate the pace of the deployment of advanced services.[361] We also note that the availability of conditioned loops enables competitors to deploy xDSL service beyond the major metropolitan areas.[362] Finally, we note our obligation under section 706 to encourage the deployment of advanced services by, among other means, promoting competition in the telecommunications market.[363]

191. As the Commission stated in the *Local Competition First Report and Order*, requiring incumbents to provide conditioned loops will, in some instances, require the incumbent LEC to take affirmative steps to enable requesting carriers to provide services that the incumbent does not currently provide.[364] We now clarify that we require the incumbent to provide loops with all their capabilities intact, that is, to provide conditioned loops, wherever a competitor requests, even if the incumbent is not itself offering xDSL to the end-user customer on that loop. Thus, incumbent LECs cannot refuse a competitive LEC's request for conditioned loops on the grounds that they themselves are not planning to offer xDSL to that customer.

192. In the *Local Competition First Report and Order*, the Commission also stated that requesting carriers would compensate the incumbent LECs for the cost of conditioning

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[361] *See*, Covad Comments at 36-37. Covad states that Bell Atlantic makes conditioned loops available only when Bell Atlantic seeks to provide ADSL service to end users, thus holding competitive LEC expansion plans hostage until Bell Atlantic is ready. Covad Comments at 36, n.63.

[362] *See, e.g.*, Covad Comments at 36.

[363] 47 U.S.C. § 706(a).

[364] *Local Competition First Report and Order*, 11 FCC Rcd at 15692, para. 382.

the loop.[365] Covad and Rhythms argue that, because loops under 18,000 feet generally should not require devices to enhance voice- transmission, the requesting party should not be required to compensate the incumbent for removing such devices on lines of that length or shorter.[366]

193. We agree that networks built today normally should not require voice- transmission enhancing devices on loops of 18,000 feet or shorter.[367] Nevertheless, the devices are sometimes present on such loops, and the incumbent LEC may incur costs in removing them. Thus, under our rules, the incumbent should be able to charge for conditioning such loops.[368]

194. We recognize, however, that the charges incumbent LECs impose to condition loops represent sunk costs to the competitive LEC, and that these costs may constitute a barrier to offering xDSL services. We also recognize that incumbent LECs may have an incentive to inflate the charge for line conditioning by including additional common and overhead costs, as well as profits. We defer to the states to ensure that the costs incumbents impose on competitors for line

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[365] *Id.*

[366] Covad Comments at 42-43; Rhythms Reply Comments at 21.

[367] *See* generally Bellcore Notes on the Network, Loop Transmission, ch.7.15, (Telcordia, 1997); Regis J. Bates and Donald Gregory, Voice and Data Communications Handbook Signature Edition, (McGraw-Hill, New York, 1997), at 76-77.

[368] *Local Competition First Report and Order*, 11 FCC Rcd at 15692, para. 382.

conditioning are in compliance with our pricing rules for nonrecurring costs.[369]

195. In addition, we agree with commenters that argue that incumbent LECs must provide "trouble reports" to the competitive LECs for any function or capability of the accessed loop element, and that the incumbent may not limit such reports to voice-transmission trouble only.[370] Not knowing whether or not the accessed line is functioning properly impairs a competitive LEC's ability to provide service, because subscribers may tend to blame the new competitor, rather than the familiar incumbent, for any lapse or degradation of service. Thus, we conclude that, in so far as it is technically feasible, the incumbent must test and report trouble on conditioned lines, if requested by the competitor, for all of the line's features, functions, and capabilities, and may not restrict its testing to voice-transmission only.

196. Dark Fiber. We agree with commenters that argue that, because dark fiber provides high transmission capabilities at relatively low cost, unbundling dark fiber is essential for competition in the provision of advanced services.[371] We reject the incumbents' reasoning that, because competitive LECs have installed lit fiber to certain high-

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[369]47 C.F.R. § 51.507(e). *See* generally 47 C.F.R. §§ 51.501 et seq.; *Local Competition First Report and Order*, 11 FCC Rcd at 15875-15876, paras. 749-751.

[370]MGC Reply Comments at 11.

[371]Illinois Commission Comments at 15; Iowa Comments at 9; Cable & Wireless Comments at 34; CO Space Comments at 7; GSA Comments at 7; Waller Creek Comments at 17. *See also* Texas PUC Comments at 16; KMC Comments at 21. New England Voice & Data states that fiber loops are particularly necessary to bring competition in advanced services to the residential market. New England Voice & Data Comments at 9-10.

volume customers, they could also install their own dark fiber, and therefore are not impaired without access to the incumbent's dark fiber.[372] As with other loops, we decline to infer from competitive LEC self-provisioning in certain circumstances that, as a general matter, the expense and delay involved in laying fiber do not impair the ability of entrants and other competitive LECs to provide the services they seek to offer.[373] We see no reason to distinguish dark fiber from our general unbundling analysis for loops.

197. US West argues that competitors do not need the incumbent LECs' fiber because a wholesale market exists in loop fiber.[374] We find, however, that the nascent wholesale market in fiber loop facilities is not yet extensive enough for us to conclude that competitors are not impaired without access to incumbent LECs' unbundled dark fiber loops.[375] We also agree with the argument that unbundled loops, including fiber, allow competitive LECs to build out their networks gradually.[376] By supplementing their own facilities with unbundled fiber loops, a competitive LEC can offer advanced services ubiquitously and not limit its service offering to small areas of concentrated demand.[377]

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[372]GTE Comments at 32; US West Comments at 39-40.

[373]*See* New England Voice & Data Comments at 14-15.

[374]US West Comments at 39-40.

[375]New England Voice & Data states that although Neon, NEES, and C2C offer fiber in the Northeast, they do not offer fiber on a ubiquitous basis, and thus are not a readily available, reasonable substitute for unbundled dark fiber. New England Voice & Data Comments at 13.

[376]RCN Comments at 15.

[377]New England Voice & Data Comments at 9-10. New England Voice & Data states that without unbundled dark fiber loops, its ability to offer advanced services would be limited to approximately two miles ("about

198. Because fiber is currently a more significant component of interoffice transport than the loop network element, we discuss aspects of dark fiber common to both elements when we discuss interoffice transport below.[378] We note here, however, that GTE raises concerns that incumbents, because of their carrier-of-last-resort obligations, have a special need for fiber reserves.[379] As we explain in greater detail below, we find these concerns exaggerated, because the capacity of fiber can be increased many fold simply by increasing the power of the electronics that light it. We find, therefore, that a shortage of fiber capacity caused by unbundling is highly unlikely.

199. In addition, GTE and the Telecommunications Industry Association argue that requiring incumbent LECs to unbundle fiber will reduce their incentive to build fiber loops in the first place.[380] We remain skeptical that this is the case, because incumbents face loop unbundling obligations no matter which technology they deploy. We note, however, that the Texas commission has already established moderate restrictions governing the availability dark fiber.[381] We do not wish to disturb the reasonable limitations and technical

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12,000") from the central office. New England Voice & Data Comments at 10.

[378] *See infra* Section (V)(E).

[379] GTE Comments at 83-84.

[380] GTE Comments at 83-84; Letter from Derek R. Khlopin, Regulatory Counsel, Telecommunications Industry Association, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98, Attachment at 4-12 (filed Aug. 2, 1999) (stating that incumbent LECs continue to build copper loop facilities even though fiber could be deployed at no additional cost, because, according to TIA, of being required to unbundle new fiber facilities.).

[381] *See* Texas PUC Comments at 16-18.

parameters for dark fiber unbundling that Texas or other states may have in place. If incumbent LECs are able to demonstrate to the state commission that unlimited access to unbundled dark fiber threatens their ability to provide service as a carrier of last resort, state commissions retain the flexibility to establish reasonable limitations governing access to dark fiber loops in their states.

200. Goals of the Act. We conclude that access to the full capabilities of incumbent LECs' loop plant nationwide will further the goals of the Act. Requiring access to unbundled loops will promote the rapid development of competition and bring the benefits of competition to greater numbers of consumers. Access to unbundled loops will also encourage competition to provide broadband services. We are convinced that greater, not fewer, options for procuring loops will facilitate entry by competitors, and that Congress intended for competitors to have these options available."[382] We find that the benefits of uniform loop unbundling outweigh the costs of creating a patchwork regime in which incumbents will seek to litigate whether particular loops should be unbundled or where an alternative to the incumbent LEC's loop is arguably substitutable. For these reasons, incumbent LECs must provide unbundled access to their loop network element nationwide.

201. Spectrum Unbundling. A number of parties request that the Commission identify loop spectrum as a separate unbundled network element.[383] In particular, they argue that

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[382] *Local Competition First Report and Order*, 11 FCC Rcd at 15718-15719, para 441.

[383] Covad Reply Comments at 9-11; Network Access Solutions Comments at 20- 26; NorthPoint Comments at 14-16; Rhythms Comments at 16-18; Rhythms Reply Comments at 25-28.

requesting carriers need access to the high-frequency loop spectrum on an unbundled basis in order to provide advanced telecommunications services, including xDSL. We decline, at this time, to identify loop spectrum as a separate unbundled network element. In the Advanced Services First Report and Order and FNPRM, we will consider whether the high-frequency spectrum of the loop qualifies as an unbundled network element and the operational issues associated with such unbundling.[384] We believe that the record developed in that proceeding more fully addresses the issues associated with spectrum unbundling, and we therefore decline to address those issues in this proceeding.

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(iv) Exception to National Unbundling Requirement

276. As discussed in section IV above, we do not limit our unbundling analysis to the cost, timeliness, ubiquity and quality factors described above. Rather, we look at the totality of the circumstances and marketplace developments when considering whether a requesting carrier is impaired without access to unbundled local circuit switching. In addition to examining where requesting carriers have deployed switches, we look to the marketplace to see which customers are receiving service from facilities-based competitors. To the extent the market shows that requesting carriers are not serving a market segment with self-provisioned switches, we find that this fact is probative evidence that for a discrete market segment requesting carriers are impaired without access to unbundled local circuit switching. Conversely, to

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[384] Advanced Services First Report and Order and FNPRM, 14 FCC Rcd at 4806-12, paras. 96-107.

the extent that the market shows that requesting carriers are generally providing service in particular situations with their own switches, we find this fact to be probative evidence that requesting carriers are not impaired without access to unbundled local circuit switching. The task before us is to develop an administratively simple rule that reflects marketplace developments and provides certainty to market participants. We seek to adopt a rule that serves as a reasonable proxy for when competitors are indeed impaired in their ability to provide the services they seek to offer.

277. In their initial and reply comments in this proceeding, the parties take sharply diverging positions regarding the circumstances and geographic areas where local circuit switches should be unbundled, if at all. Incumbent LECs generally support elimination of their obligation to unbundle local circuit switches in a geographic area where one requesting carrier has deployed a single local circuit.[546] Competitive LECs oppose the incumbent LEC proposals for elimination of the circuit switch unbundling obligation and argue that local circuit switching should be unbundled on a national basis.[547] In several ex parte presentations after the record closed, a number of parties softened their initial positions and propose a more narrowly tailored rule for determining when circuit switching need not be unbundled.

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[546]Ameritech Comments at 5-6, 84; Bell Atlantic Comments at 23; BellSouth Comments at 56; SBC Comments at 42; GTE Comments at 39; USTA Comments at 34; US WEST Comment at 44.

[547]*See, e.g.*, Cable & Wireless Comments at 36; KMC Comments at 15; Net2000 Comments at 13; Sprint Comments at 31; Qwest Comments at 70; AT&T Comments at 86.

[548] A number of other parties respond to these fall-back positions in subsequent ex parte presentations.[549]

278. Despite our conclusion that, in general, requesting carriers are impaired without access to unbundled switching, we conclude that it is appropriate to establish a more narrowly tailored rule to reflect significant marketplace developments. As described more fully below, we find that

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[548] *See* Letter from Chuck Goldfarb, Director, Law and Public Policy MCI WorldCom, to Lawrence E. Strickling, Chief, Common Carrier Bureau, Federal Communications Commission, CC Docket No. 96-98, at 4 (filed August 9, 1999) (concluding that the top 29 MSAs should define the geographic scope of an incumbent LEC's local circuit switch unbundling obligation); Letter from Christopher M. Heimann, Director of Legal Affairs, Ameritech, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed September 7, 1999) (stating that Ameritech "would not oppose an MSA approach pursuant to which ULS and the UNE platform would not be made available in the top 100 MSAs in the United States."); CompTel August 19,1999 Ex Parte (arguing that local circuit switching should not be unbundled in density zone 1 within the highest density MSAs); Letter from Kathleen B. Levitz, Vice President - Federal Regulatory, BellSouth, to Ms. Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed July 29, 1999) (proposing that local circuit switching should not be unbundled in zones 1 and 2 or in rate exchange areas served by one of more CLEC switches).

[549] *See* Letter from Robert W. Quinn, Jr., AT&T, to Mr. Lawrence Strickling, Chief, Common Carrier Bureau, Federal Communications Commission, CC Docket No. 96-98 (filed August 19, 1999) (AT&T August 19, 1999 Ex Parte) (arguing AT&T would be impaired if local circuit switching is not unbundled in MSAs 36-100); Letter from David Scott, Birch Telecom, to Jake E. Jennings, Special Advisor, Common Carrier Bureau, Federal Communications Commission, CC Docket No. 96-98 (filed September 8, 1999) (opposing attempts to restrict the availability of unbundled local circuit switching); Letter from Melissa Newman, Vice President - Federal Regulatory U S WEST, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed August 18, 1999) (opposing MCI's MSA approach);

requesting carriers are not impaired without access to unbundled local circuit switching when they serve customers with four or more lines in density zone 1 in the top 50 metropolitan statistical areas (MSAs), as set forth in Appendix B, where incumbent LECs have provided nondiscriminatory, cost-based access to the enhanced extended link (EEL) throughout density zone 1.[550]

279. Top 50 MSAs. We conclude that it is appropriate to create an exception to the switching unbundling obligation in certain circumstances in the top 50 MSAs, as they are defined by the Office of Management and Budget.[551] We thus respond to various suggestions in the record that an exception from the switching unbundling obligation should encompass the top 29, top 35 and top 100 MSAs in the United States.[552]

280. As previously noted, as of March, 1999, approximately 167 different competitors have deployed

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[550]47 C.F.R. § 69.123 of the Commission's rules define the parameters for the establishment of density pricing zones that allow price-cap LECs to charge geographically deaveraged rates for switched transport services. Density zone 1 is the geographic area with the highest access line density and amount of traffic volume.

[551]An MSA is made up of a county or group of contiguous counties surrounding a city with a population of 50,000 or more. The Office of Management and Budget defines MSAs for use in federal statistical activities pursuant to 44 U.S.C. § 3504(d)(3) and 31 U.S.C. § 1104(d). Presently, there are 258 MSAs in the United States.

[552]*See* Letter from Chuck Goldfarb, Director, Law and Public Policy MCI WorldCom to Larry Strickling, Chief, Common Carrier Bureau, Federal Communications Commission, at Page 4, CC Docket No. 96-98 (filed August 9, 1999) (Top 29 MSAs); AT&T August 19, 1999 Ex Parte (Top 35 MSAs); Letter from Christopher M. Heimann, Director of Legal Affairs, Ameritech, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed September 7, 1999) (analysis of top 100 MSAs).

approximately 700 switches throughout the country.[553] When we analyze where requesting carriers have deployed these switches, we find that most of these switches have been deployed within the confines of the top 50 MSAs.[554] According to USTA's data, which relies on the Local Exchange Routing Guide, approximately 61 percent of all requesting carrier switches nationwide have been deployed in the top 50 MSAs.[555] More significantly, the vast majority of these MSAs contain multiple switches owned by competitors. In particular, four or more competitive switches have been deployed in 96 percent of the top 50 MSAs.[556] According to USTA's data, only two MSAs in the top 50 -- Cincinnati and Las Vegas -- have less than three requesting carrier switches serving an incumbent LEC rate exchange area within the MSA.

281. Based on the evidence in the record, we conclude that exempting incumbent LECs from unbundling local circuit switching in certain circumstances in the top 50 MSAs

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[553]USTA UNE Report at I-1.

[554]USTA UNE Report at I-11 ("Rate Exchange Areas in top 50 MSAs Where CLECs Have Obtained NXX Codes"). We recognize also that requesting carrier switches may serve more than one rate exchange area. *See* USTA UNE Report at I-23 ("According to the March 1999 LERG, the average CLEC switch in BOC and GTE territory has NXX codes for 14 rate exchange areas.")

[555]USTA UNE Report at I-11 ("Rate Exchange Areas in top 50 MSAs Where CLECs Have Obtained NXX Codes"). We note that the remainder of the switches if evenly deployed throughout MSAs 50-200 would result in no MSA having more than 2 requesting carrier switches in an MSA. For example, the USTA UNE Report states that there are 12 competitive LEC switches in New York, 23 competitive LEC switches in Washington, D.C., 19 competitive LEC switches in Atlanta, 11 competitive LEC switches in Seattle and 12 competitive LEC switches in Denver.

[556]*See* USTA UNE Report at I-11.

is reasonable because nearly all of the top 50 MSAs contain a significant number of competitive switches.[557] In contrast, MSAs below the top 50 typically contain fewer competitive switches. For example, in US WEST's territory, no MSA between 50 and 150 contains more than three competitive switches.[558] In the top 100 MSAs in Ameritech's territory, only six percent of Ameritech's wire centers are served by four or more competitive switches.[559]

282. We recognize that drawing the line at the top 50 MSAs means that incumbent LECs serving more rural

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[557]*See* USTA Comments, Tab 3, Map 1 (overlaying borders of top 50 MSAs to CLEC switches; Source: March 1999 LERG). CompTel also submitted the following data to describe competitive LEC operations in the top 50 MSAs. Where carriers obtain unbundled loops, they are providing service with their own switch. In the New York MSA, there are 2,154,569 business lines and the incumbent LEC has provisioned 49,442 unbundled loops resulting in a market share for all competitive LECs of 2.2 percent. In the Los Angeles MSA, there are 2,149,360 business lines and the incumbent LEC has provisioned 46,561 unbundled loops resulting in a market share of 2.1 percent. In the Chicago MSA, there are 2,068,118 business lines and the incumbent LEC has provisioned 20,469 unbundled loops resulting in a market share of 1.0 percent. In the Washington, D.C. MSA, there are 1,657,658 business lines and the incumbent LEC has provisioned 3,391 unbundled loops resulting in a market share of .2 percent. In the Boston MSA, there are 1,355,657 business lines and the incumbent LEC has provisioned 3,098 unbundled loops resulting in a market share of .2 percent. *See* CompTel August 19, 1999 Ex Parte.

[558]*See* Letter from Melissa Newman, Vice President - Federal Regulatory, US WEST, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 Attachment A (filed August 18, 1999) (US WEST August 18, 1999 Ex Parte).

[559]*See* Letter from Christopher M. Heimann, Director of Legal Affairs, Ameritech to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed September 7, 1999) (Ameritech September 7 Ex Parte).

territories, which have fewer MSAs that are in the top 50 MSAs, will continue to be subject to an unbundled switching obligation. We nonetheless believe that this is a reasonable exercise of our administrative discretion. Extending an incumbent LEC's switch unbundling exemption to include more than the top 50 MSAs would require us to find that requesting carriers are not impaired without unbundled access to local circuit switching in these MSAs. We have no basis in the record before us to make such a finding because there are relatively few competitive switches outside of the top 50 MSAs.

283. We note that collocation costs and delay, as compared to revenue potential, may contribute to the relative lack of robust competitive switch deployment in areas outside of the top 50 MSAs. As discussed above, the total costs of a competitor using self-provisioned local circuit switching on an MSA basis include the costs incurred in providing service to every customer that the competitor seeks to serve. We concluded above that collocation imposes indirect costs on carriers installing their own switches.[560] We also found that the amount of collocation cost are likely to vary according to individual requesting carriers.[561] We believe that the revenue potential of serving less dense markets outside the top 50 MSAs is unlikely to outweigh the costs of collocating in these markets, and accordingly, competitors are impaired without access to unbundled local switching.

284. Density Zone 1. When we examine the deployment of switches by competitors at a more granular level, we find that, based on the record before us, requesting carriers have

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[560] *See supra* Section (V)(D)(1).

[561] *Id.*

deployed greater numbers of switches in areas of high customer density. Several incumbent LECs argue that switching should not be unbundled in dense wire centers, but each proffers its own geographic market definition for our local circuit switch unbundling analysis.[562] BellSouth proposes, and other incumbent LECs support, the use of density zones 1 and 2 to capture the areas in which competitors have deployed switches and where incumbent LECs need not unbundle switching.[563]

285. We conclude that it is appropriate to create an exception to the local circuit switching unbundling obligation only in density zone 1, within the top 50 MSAs. The exception applies to density zone 1 as it was defined on January 1, 1999. Based on the limited evidence in the record, we believe that density zone 1 closely reflects the wire centers where competitive LEC switches are located. In

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[562] *Id.*

[563] 47 C.F.R. § 69.123. Incumbent LECs generally proceed through a three- step process to assign central offices to density zones within a given study area. In the first step, an incumbent LEC ranks its wire centers in order of decreasing traffic density, based on some measure of density chosen by the incumbent LEC. In the second step, the incumbent LEC sets breakpoints within the zone density ranking to partition the wire centers into zones, and finally, an incumbent LEC further adjusts the zones as it sees fit, based on geographic contiguity or community of interest reasons. See Expanded Interconnection Order, 7 FCC Rcd at 7454-55, para. 179; 47 C.F.R. § 61.38(b)(4). *See also* Access Charge Reform, CC Docket No. 96-262, Fifth Report and Order and Further *Notice* of Proposed Rulemaking, 1999 WL 669188, (rel. August 5, 1999). *See* Letter from Kathleen B. Levitz, Vice President - Federal Regulatory BellSouth, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed July 28, 1999) (Incumbent LEC Joint Ex Parte) (96% of Zone 1 wire centers served by one or more CLEC switches; 84 % of Zone 2 wire centers served by one or more CLEC switches).

particular, of the seven markets in the top 50 MSAs served by BellSouth, each MSA contains at least one density zone 1[564] where approximately 97 percent of all competitive LEC switches have been deployed.[565] We recognize that only one commenter, BellSouth, provided detailed data to describe where requesting carriers have deployed switches in density zone 1. The record does not contain similar data for other incumbent LECs. Given the record before us and the need to provide a measure of certainty to the market, we believe that drawing a line at density zone 1 within the top 50 MSAs represents a reasonable approximation of where requesting carriers are not impaired without access to unbundled local circuit switching.

286. In order to prevent incumbent LECs from modifying their density zones to limit their unbundling obligation for local circuit switching, we freeze, for unbundling purposes, the incumbent LECs' density zone 1 as it was defined on January 1, 1999. Otherwise, incumbent LECs would retain significant discretion to define their density zone boundaries in the future. The Commission reviews incumbent LEC zone density pricing plans under a " reasonableness" standard.[566]

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[564]BellSouth Comments at Attachment D.

[565]*See* BellSouth Comments at 59. Specifically, in Atlanta, competitive LECs have deployed 20 switches in zone 1; in Miami, 13 switches in zone 1; in Orlando, 9 switches in zone 1; in Charlotte, 9 switches in zone 1; in New Orleans, 7 switches in zone 1; in Nashville, 7 switches in zone 1; and in Greensboro, 2 switches in zone 1.

[566]*See* GTE Service Corporation Revised Zone Density Pricing Plan, Order, 10 FCC Rcd. 5696, 5697 para. 7 (1995); BellSouth Telecommunications Inc., GTE Service Corporation, Lincoln Telephone and Telegraph Co. NYNEX Telephone Companies, Pacific Bell, and Rochester Telephone Corporation Zone Density Pricing Plans, Order, 8 FCC Rcd 4443, 4446, para. 8 (1993) (First Zone Density Order).

For example, our rules allow incumbent LECs to define zone boundaries upon a showing that "the assignment of central offices to each of the zones reflects cost-related characteristics, such as traffic density or some measure of traffic through each office."[567] MCI WorldCom argues that using the zone approach would allow incumbent LECs to " redefine breakpoints to put more central offices into zones in which the incumbent LECs were not required to provide switching as an unbundled network element" and would allow incumbent LECs to "change their methodologies for defining zones to upset their competitor's business plans."[568] To address the possibility that incumbent LECs, going forward, could amend their density zones to minimize their unbundling obligations, we create an exception to the unbundling obligation in the density zones as they existed on January 1, 1999.[569] We believe that freezing the zones as of January 1, 1999, for purposes of section 251 unbundling obligations, addresses MCI WorldCom's concerns.

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[567] *See* Expanded Interconnection Order, 7 FCC Rcd at 7454-55, para 179; 47 C.F.R. § 61.38(b)(4). MCI WorldCom notes that it is unaware of any zone density plan that has been found unreasonable. Letter from Chuck Goldfarb, Director, Law and Public Policy, MCI WorldCom to Larry Strickling, Chief, Common Carrier Bureau, Federal Communications Commission (filed August 9, 1999).

[568] MCI WorldCom argues that where a requesting carrier plans to purchase unbundled switching, the incumbent LEC could change its methodology for ranking central office traffic density in such a way that the central office changed zones, and the incumbent LEC was no longer required to offer switching to requesting carriers. MCI is further unaware of any incumbent LEC methodology or zone plan that has ever been found unreasonable. *See* MCI WorldCom August 9 Ex Parte.

[569] *See* CompTel August 19 Ex Parte (supporting use of density zone 1 as they existed on January 1, 1999 in top MSAs.).

287. As discussed in our unbundling analysis above, as requesting carriers' switch utilization rates increase, the difference between the switching costs incurred by competitive and incumbent LECs decreases, and the per line switching costs will decrease as a requesting carrier's customer base grows.[570] Because of increased demand for telecommunications services and the enhanced revenue opportunities associated with serving customers in high-density areas, such as density zone 1, we find that requesting carriers serving these dense areas are able to make more efficient use of their switching facilities, and can thus counter incumbent LEC scale economies. We therefore find that the cost of purchasing a circuit switch does not impair a requesting carrier's ability to provide the services it seeks to offer in density zone 1, in certain circumstances.

288. Need for Enhanced Extended Link. Our conclusion that competitors are not impaired in certain circumstances without access to unbundled switching in density zone 1 in the top 50 MSAs also is predicated upon the availability of the enhanced extended link (EEL). As noted in section VI(B) above, the EEL allows requesting carriers to serve a customer by extending a customer's loop from the end office serving that customer to a different end office in which the competitor is already collocated. The EEL therefore allows requesting carriers to aggregate loops at fewer collocation locations and increase their efficiencies by transporting aggregated loops over efficient-high capacity facilities to their

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[570] As previously noted, MCI WorldCom contends that at 10% percent market penetration, switching costs for a requesting carrier are about 132% above incumbent LEC switching costs but decrease to 31% above incumbent LEC switching costs at 30% penetration levels. *See* MCI WorldCom Comments at 51 and MCI WorldCom Bryant Decl. at para. 30).

central switching location. Thus, the cost of collocation can be diminished through the use of the EEL. We agree with ALTS that, if requesting carriers can obtain nondiscriminatory, cost-based access to the enhanced extended link, their collocation costs would decrease, and they would need to collocate in as few as one incumbent LEC central office in an MSA to provide service.[571]

289. We are not persuaded by arguments that use of the EEL produces only a short term advantage over collocation.[572] Although we agree with SBC that distance-sensitive EEL costs can exceed the costs associated with collocation over time, we find that the ability of a requesting carrier to provision EELs more quickly than collocation arrangements, without the substantial upfront costs of establishing collocation in multiple central offices, can reduce significantly the costs of self-provisioning a switch in the initial phase of an entry strategy. When projected EEL costs exceed projected collocation costs, competitive LECs may reconfigure their networks to ensure the continued efficiency of their networks. We conclude that requesting carriers, reacting to marketplace demands and their own network

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[571]ALTS Comments at 62.

[572]In Texas, SBC compares a $21 monthly loop cost and a $29 EEL cost which does not include approximately $40 per month of distance sensitive transport costs (assuming 8 miles from the SBC central office to collocation cage). SBC further assumes that requesting carriers incur on average a $15,405 non- recurring charge for collocation and a $995 recurring charge per month for collocation. Thus, under SBC's cost analysis, it would take a requesting carrier a matter of months before the recurring EEL and transport costs are greater than the up-front collocation expenses. *See* Letter from Lincoln E. Brown, Director - Federal Regulatory, SBC, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed July 15, 1999).

topologies, are better able to weigh the costs and benefits of EELs compared to collocation and adjust their plans accordingly. Where a requesting carrier chooses the EEL, we find that it reduces a requesting carrier's reliance on collocation.

290. Customers with Four or More Lines. Our analysis of an incumbent LEC's local circuit switching obligation has focused primarily upon the geographic areas where competitive carriers have deployed switches. We now consider whether, within these geographic areas, market facts demonstrate that requesting carriers are not impaired without access to local circuit switching for discrete market segments or customer classes.

291. We conclude that without access to unbundled local circuit switching, requesting carriers are impaired in their ability to serve the mass market. As discussed above, our unbundling analysis takes into account market conditions to determine whether a requesting carrier is impaired without access to unbundled local circuit switching. Since the Commission adopted the *Local Competition First Report and Order*, competition has continued to develop, primarily for business customers or users with substantial telecommunications needs.[573] Commenters in this proceeding generally argue that requesting carriers have deployed switches to serve medium and large business customers and are not yet serving mass market customers, which largely are

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[573] *See* Advanced Services Memorandum Opinion and Order and NPRM, 13 FCC Rcd at n. 80 ("The local competition that has developed has focused on larger business customers in large cities, not on residential or small business customers."). *See also* Trends in Telephone Service, Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, September 1999, at Section 9-1.

residential customers.[574] No party in this proceeding, however, identifies the characteristics that distinguish medium and large business customers from the mass market.

292. There are several methods we could use to distinguish between the mass market and the medium and large business market for purposes of our unbundling analysis. For example, we could use revenues, number of employees, number of lines, or some other factor to distinguish between the mass market and the medium and large business market.

293. We find, however, that a rule that provides access to unbundled local switching for requesting carriers when they serve customers with three lines or less captures a significant portion of the mass market. First, virtually all residential customers would be captured by such a rule. While an increasing number of American homes are served by second lines, we believe it is a rare case in which residences have three lines, and even more unusual for a home to have four or more lines. Second, any business that has three or fewer lines is likely to share more characteristics of the mass market customer than a medium and large business. In particular, small businesses are likely to use the same number of lines as many residential subscribers and purchase similar volumes and types of telecommunications services.

294. We recognize that a rule that removes unbundling obligations based on line count will be marginally overinclusive or underinclusive given individual factual

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[574]USTA UNE Report at I-10-I-19 & App. A. *See also* Ameritech Comments at 73-79; AT&T Reply Comments at 104; BellSouth Comments at 58-59; GTE Comments at 40-42, 46-47; SBC Comments at 36, 38; US WEST Comments at 42-43.

circumstances. We find, however, that in our expert judgment, a rule that distinguishes customers with four lines or more from those with three lines or less reasonably captures the division between the mass market - where competition is nascent - and the medium and large business market - where competition is beginning to broaden.

295. Our decision to examine mass market and larger business markets separately is consistent with the Commission's merger review analysis and the Commission's reform of the interstate access charge regime. In the MCI-WorldCom merger, we identified two distinct product markets - residential and small business, which we described as one market, and medium and large business customers, which we described as the larger business market.[575] In the Access Reform proceeding, the Commission distinguished between primary residences and single line businesses which constitute a large portion of the mass market, and multi-line business customers which constitute the medium and large business markets.[576] We therefore conclude that it is

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[575]*See* Application of WorldCom, Inc. and MCI Communications Corporation for Transfer of Control of MCI Communications Corporation to WorldCom, Inc., Memorandum Opinion and Order, 13 FCC Rcd 18025, at paras. 24-26 (1998) ("we identify two distinct product markets, reflecting customers groups with different patters of demand: (1) residential customers and small business (mass market); and (2) medium-sized and large business customers (larger business market).").

[576]*See* Access Charge Reform, CC Docket No. 96-262 et al., First Report and Order, 12 FCC Rcd 15982 (1997) (Access Charge Reform Order), aff'd sub nom. Southwestern Bell Tel. Co. v. Fed. Communications Comm'n, ___ F.3d ___ (8th Cir., Aug. 19, 1998); Order on Reconsideration, 12 FCC Rcd 10119 (1997), Second Order on Reconsideration and Memorandum Opinion and Order, 12 FCC Rcd 16606 (1997) (distinguishing between primary residences, single line business and multi-line business customers).

appropriate to make a similar distinction between mass market customers and larger business customers in creating an exception to the unbundling obligation for local circuit switching.

296. As discussed above, a requesting carrier is materially diminished in its ability to offer service to mass market customers without access to unbundled switching because it will face materially greater costs, materially greater delay, and will lack the same ubiquitous reach as the incumbent LEC's network. In addition to the costs of establishing a collocation arrangement with the incumbent LEC, we noted above that requesting carriers incur additional costs and face service quality impediments when extending a customer's loop to their collocation cages.[577]

297. In contrast, marketplace developments suggest that competitors are not impaired in their ability to serve certain high-volume customers in the densest areas. We believe that the coordinated cutover process will not necessarily impair the ability of a requesting carrier to serve an end user in density zone 1. Medium and large business customers are often sophisticated users of telecommunications services that are able to order their operations in a manner that minimizes disruptions that may be caused by coordinated cutovers.[578] For example, requesting carriers seeking to provide service to medium and large business customers may engage in direct outbound marketing in such a way as to control coordinated

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[577] *See supra* para. 268. We note that for medium and large business customers in dense wire centers, many requesting carriers serve these customers with their own SONET rings and thus incur no additional hot cut costs, delays or service quality impairments.

[578] For example, coordinated cutovers that do not occur during normal business hours may not disrupt the operations of a business customer.

cutover order flows to the incumbent LEC.[579] In addition, to the extent that incumbent LECs provide requesting carriers with unbundled switching to serve the mass market, requesting carriers will require fewer coordinated loop cutovers in the aggregate and can focus their efforts on coordinated cutovers for customers not served with unbundled local circuit switching.[580] Finally, because business customers generate comparably greater revenues than residential customers, requesting carriers may be more willing to incur the provisioning difficulties that may be present in the coordinated cutover process.

298. We conclude that carriers will not be impaired in their ability to serve high volume users only when the EEL is provided throughout density zone 1. While some customers in this area already are being served by facilities-based carriers without the EEL, the availability of the EEL will ensure that requesting carriers are able to serve customers ubiquitously throughout the area. If the EEL is available and a requesting carrier seeks to serve a high volume business, the incumbent LEC can provision the high capacity loop and connect directly to a requesting carrier's collocation cage.[581]

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[579]For example, a competitive LEC may use a sales force instead of mass market advertising to control the demand for its services and thus the number of coordinated cutovers required to serve its customers.

[580]In Ameritech's territory, the market segment for business customers with three lines or less accounts for approximately 72 percent of Ameritech's business customer base. *See* Letter from James K. Smith, Director, Federal Relations, Ameritech, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed September 8, 1999)("Ameritech Business Customer Base by Line Size").

[581]Furthermore, requesting carriers and incumbent LECs have developed routine provisioning processes to deploy the EEL using the ASR or Access Service Request process, and thus requesting carriers will not face

In this scenario, the requesting carrier need not initiate a coordinated loop cutover. Moreover, the availability of the EEL substantially reduces the delay a requesting carrier would experience before it is able to actually provide service.[582]

299. Goals of the 1996 Act. As noted above, our unbundling analysis considers how the switching unbundling obligation we adopt will encourage requesting carriers to rapidly enter the local market and whether the failure to require unbundling will cause any class of consumers to wait unnecessarily for competitive alternatives. Our decision to relieve incumbent LECs from their unbundling obligations in the circumstances described above will not require medium and large businesses to wait unnecessarily for competitive alternatives. We find that requesting carriers have deployed a large number of switches to serve medium and large business customers in the densest areas of the top 50 MSAs, and these medium and large business customers by and large, have a choice in their local service provider.[583] Accordingly, we find that relieving incumbent LECs of their unbundled switching obligation, as set forth herein, will not require medium and

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material provisioning delays and costs to integrate the EEL into their networks.

[582]*See* Letter from Jonathan E. Canis, Counsel for ALTS, Intermedia, e.spire, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed August 27, 1999).

[583]AT&T Reply Comments at 104 ("AT&T's two 5ESS switches in Dallas . . . are not being used 'to reach . . . as much as 98 percent . . . of the addressable business and residential market' as GTE claims is the case. [citations omitted]. Rather, those switches like AT&T's DMS-100 in Washington, D.C. are being used to offer service to business customers. The same is true for each of AT&T's local switching in other markets, such as Los Angeles, Denver, Detroit and Tampa.").

small business consumers to wait unnecessarily for competitive alternatives because they are largely available today. Furthermore, eliminating an incumbent LEC's local circuit switching obligation in these circumstances is consistent with our goal to reduce regulation when possible. Our decision also provides requesting carriers with access to the elements they need to ramp up towards continued deployment of self-provisioned switches and is therefore consistent with our policies of encouraging facilities-based competition and encouraging innovation.

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(iii) Unbundling Analysis

332. We conclude that lack of access to unbundled interoffice transport impairs a carrier's ability to provide the services it seeks to offer. Requiring carriers to self-provision, or acquire from third-party providers, extensive interoffice transmission facilities materially increases the costs of market entry or of expanding service, delays broad-based entry, and limits the scope and quality of the competitor's service offerings. Neither self- provisioning interoffice transport facilities nor obtaining these facilities from third-party sources is an adequate alternative to the ubiquitous transmission facilities that a competitor can obtain from the incumbent LEC under section 251's unbundling obligations. Accordingly, we require incumbent LECs to provide unbundled access to their interoffice transmission facilities.

333. Although the record indicates that competitive LECs have deployed interoffice transport facilities along selected point-to-point routes, primarily in dense market areas, we find that the these facilities are not available, as a practical, economic, and operational matter, such that a requesting carrier's ability to provide the services it seeks to

offer would not be impaired without access to the incumbent's ubiquitous interoffice transmission facilities. Specifically, the competitive transport facilities that currently exist do not interconnect all of an incumbent LEC's central offices and all interexchange carrier's points of presence within an MSA, or a substantial portion thereof.

334. Availability of Alternatives Outside the Incumbent's Network. Local competitors began deploying fiber networks in urban markets approximately 15 years ago.[659] Incumbent LECs have provided a significant amount of data indicating the location of transport facilities deployed by competitive LECs. For example, the incumbents submitted, through the USTA UNE Report, data that indicates that, by the end of 1998, competitive LECs had deployed interoffice transport in approximately 300 cities.[660] According to the USTA UNE Report, competitors have deployed nearly 30,000 route miles of fiber within the top 50 MSAs.[661]

335. In addition, the USTA UNE Report states that of the top 50 MSAs, forty- seven are served by at least three competitors; 29 are served by five or more competitors; and 16 are served by seven or more competitors.[662] The USTA Report also asserts that requesting carriers have deployed

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[659]In 1985, New York state regulators granted Teleport authority to provide interoffice services in New York City. *See* Case 28891, Teleport Communications (NYDPS Jan., 7, 1985).

[660]Among the competitors with the most extensive fiber networks are AT&T, MCI, Sprint, Qwest, Level 3, Enron, MFN, Williams, Frontier, IXC, NEXTLINK, Intermedia, Hyperion, RCN, GST, ICG, Electric Lightwave and e.spire. *See* USTA UNE Report at II.

[661]USTA UNE Report Appendix B at II-6.

[662]*Id.*

fiber in all but 15 of the MSAs ranked between 50 and 150[663] and that competitors have centered their deployment of competitive fiber around "dense" wire centers, which USTA defines as wire centers with 40,000 or more access lines.[664] The USTA UNE Report also maintains that as of March 1999, incumbent LECs have the following number of wire centers that are served by at least one competitive fiber provider: Ameritech 161; Bell Atlantic 274; BellSouth 136; GTE 70; SBC 284; US WEST 118.[665]

336. The incumbents also provide evidence of the number of collocation arrangements in many of their wire centers. Relying on this data, the incumbents argue that there are significant alternatives to interoffice transport services available. According to USTA, the fact that competitors have operational collocation arrangements in approximately 874 dense wire centers implies the presence of competitive fiber "nearby."[666] In particular, according to the USTA UNE Report, of the wire centers with 20,000 or more lines, 90 percent in the SBC region, 72 percent in the Bell Atlantic region, and 74 percent in the US West region have collocation, which the incumbents assert signifies competitive transport is available.[667]

337. Bell Atlantic also argues that its Competitive Alternative Transport Terminal (CATT) service, currently

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[663] *Id.*

[664] The USTA UNE Report argues that there is a close correlation between collocation and the presence of competitive fiber facilities in these dense wire centers. USTA UNE Report at I-8.

[665] USTA UNE Report at II-20.

[666] *Id.*

[667] *Id.* at II-8.

offered on a trial basis with Metromedia Fiber Network Services (MFN), offers high capacity interoffice dedicated transport services to any collocated carrier. Bell Atlantic claims that MFN has entered into this CATT arrangement in a large number of end offices and that CATT will be generally available to other carriers pursuant to tariff.[668]

338. Other evidence in the record, however, undermines the incumbents' suggestion that competitive fiber is sufficiently available that transport should not be unbundled. MCI WorldCom, for example, provides information about the number of transport providers in the six major cities included in the USTA survey. According to MCI WorldCom, only eight of the 138 wire centers in Los Angeles have three or more collocators that provide transport.[669] Similarly, MCI WorldCom states that only four of 64 wire centers in Seattle have three or more collocators providing transport and only one of 25 wire centers in San Jose has three or more collocators providing transport. In addition, MCI WorldCom reports that, in Minneapolis, Richmond and Washington DC with 135, 51, and 158 wire centers respectively, no end office has three collocators providing transport.[670]

339. In addition, NorthPoint reports that the incumbent LEC is the only source of transport for at least 70% of central

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[668] *See* Letter from Dee May, Federal Regulatory - Bell Atlantic, to Magalie R. Salas, Secretary, Federal Communications Commission, Docket 96-98 (filed July 13, 1999).

[669] *See* MCI WorldCom August 13, 1999 Ex Parte.

[670] Letter from Chuck Goldfarb, Director Law and Public Policy MCI WorldCom, to Larry Strickling, Chief, Common Carrier Bureau, Federal Communications Commission, CC Docket No. 96-98 (filed August 16, 1999). MCI WorldCom contends that this level of collocation evidences an "astonishingly small amount of transport competition." *Id.*

offices in which NorthPoint is collocated, even in dense wire centers in large metropolitan areas.[671] Similarly, Sprint asserts that in New York City, which is considered the most mature market in the country, Sprint continues to use the incumbent LEC extensively for transport because competitive fiber is not available in sufficient numbers of incumbent LEC central offices for it to offer a ubiquitous service in this area.[672]

340. Ubiquity. We conclude that, despite the evidence of some competitively deployed interoffice transmission facilities, lack of access to the incumbent's dedicated transmission facilities impairs a requesting carrier's ability to provide the services it seeks to offer. The alternatives cited in the evidence submitted by the incumbents are not ubiquitously available, and therefore competitive transport if not available as a practical, economic and operational matter.

341. As an initial matter, we are not persuaded that the incumbents' data accurately reflects the extent to which

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[671]Letter from A. Richard Metzger, Jr., attorney for NorthPoint Communications, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed August 13, 1999) (NorthPoint submits data that in Atlanta, the incumbent LEC is the only transport alternative for 78% of COs where it is collocated. In the San Francisco metropolitan area, the incumbent LEC is the sole transport provider in 70% of COs where it is collocated. In New York, the number is 75%; Chicago, 71%, Los Angeles, 77% and Seattle, 73%.). MCI WorldCom submitted an Ex Parte showing that out of approximately 20,000 incumbent LEC central offices nationwide, there are two end offices with five competitor collocations; 28 end offices with four competitor collocations and 63 end offices with three competitor collocations offering competitive transport. *See* Letter from Chuck Goldfarb, Director Law and Public Policy MCI WorldCom to Larry Strickling, Chief, Common Carrier Bureau, Federal Communications Commission, CC Docket No. 96-98 (filed August 13, 1999.).

[672]Sprint Comments at 32-33.

alternatives are actually available to competitors. In particular, we find that only at a granular, wire center-by-wire center level does the record show the presence of competitive alternatives to the incumbent's interoffice transport, albeit on a non-ubiquitous basis.[673] Thus, without access to unbundled dedicated transport, requesting carriers would be forced to create a patchwork of alternative network facilities, where they have been deployed and are being offered to other carriers, or alternatively to construct their own transport facilities. The USTA UNE Report based its analysis on the markets that have attracted the most competitive transport entry. For example, the USTA UNE

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[673]As discussed above, we recognize that the Commission has established a framework for incumbent LEC pricing flexibility in areas where competition for dedicated transport and most special access services has developed. Competition evidenced by the satisfaction of certain triggers, to the extent they are met, however, does not demonstrate that a requesting carrier is not impaired without access to unbundled dedicated transport. The Commission's pricing flexibility rules provide for flexibility where one requesting carrier is collocated in a serving wire center. These rules allow incumbent LECs to meet competitive transport entry with pricing flexibility. They do not, however, describe market conditions where requesting carriers would not be impaired without access to unbundled transport. Furthermore, even in those areas where competition for special access services is present and where, presumably the triggers for pricing flexibility have been met, the price differentials between TELRIC- priced transport and special access may persist for an indefinite period of time because the differential between unbundled transport and retail special access services are significant. According to one commenter, in the San Francisco Bay Area, PacBell's monthly access charge for a DS3 special access service is more than 50% higher than unbundled transport. In New York City, Bell Atlantic's monthly DS3 tariff rate is 258% higher than the comparable unbundled network element transport rate. In Miami, BellSouth's DS3 tariff rate is 353% higher than comparable unbundled network element interoffice transport rates. *See* Covad Comments at 45, Attachment 3, Aff. of Mark Shipley and David Rauschenberg, at para. 22-23.

Report states that "[I]n the Los Angeles MSA, 72 wire centers serve 40,000 + lines. Of these, 20 have at least one collocated competitive LEC. An analysis of fiber route maps shows that CLEC fiber passes through at least 15 of 20 wire center areas with collocation."[674] Thus, according to USTA's data, 15 of 72 dense wire centers or approximately 21% of dense wire centers in the Los Angeles MSA include competitive fiber "nearby."[675]

342. We note that the incumbents do not explain what is meant by fiber that is "nearby." Nor do incumbents explain how having fiber "nearby" reflects the availability of ubiquitous transport alternatives. In addition, however, because the incumbents' data focuses only on the most dense wire centers, the data provides little to no information about the availability of transport in less dense wire centers in the same cities. If the analysis were expanded to include less dense wire centers, or wire centers serving less than 40,000 lines, the analysis would presumably show a lower percentage of competitive alternatives for the entire MSA than is reflected by the data provided by the incumbents.

343. Incumbents rely on the evidence of competitively deployed transport submitted in the USTA UNE Report to argue that competitive LECs are not impaired without access to unbundled transport facilities in locations where competitive LECs have already deployed transport. Specifically, the incumbents argue that the Commission should exclude dedicated transport from an incumbent LEC's unbundling obligations in any area where at least one requesting carrier has deployed transport facilities and has

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[674]USTA UNE Report at II-8.

[675]*Id.*

collocated its own transmission equipment in an incumbent LEC central office.[676] We reject this argument. Although the incumbents' evidence shows that nearly 30,000 route miles of fiber have been deployed in the top 50 MSAs, there are few, if any alternative transport facilities outside the incumbent LECs' networks that connect all or most of an incumbent LEC's central offices and interexchange carriers' points of presence within an MSA.[677] Even where competitive alternatives exist, the alternatives generally do not travel the same routes as the incumbent's facilities. Thus, even if competitors were able to purchase indirect routing from alternative providers, to the extent alternatives exist, competitors more than likely have to route their traffic along

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[676]GTE Comments at 10, 59 (stating that the Commission should not unbundle transport in wire centers with 15,000 or more access lines and the presence of one or more collocation arrangements); Ameritech Comments at 88 (stating that the Commission should not unbundle dedicated transport in dense wire centers with one or more collocation arrangements); SBC Comments at 50 (stating that the Commission should not unbundle dedicated transport in dense wire centers with one or more collocation arrangements); BellSouth Comments at 53 (stating that the Commission should not require unbundling of dedicated transport in Zone 1 and Zone 2); Bell Atlantic Comments at 30 (stating that the Commission should not require unbundling of dedicated transport in any area here at least one carrier has deployed its own network and there is the presence of one collocation arrangement); US WEST Comments at 48 (stating that the Commission should establish a presumption that incumbent LECs do not have to unbundle transport to or from wire centers with 20,000 or more loops and have one or more collocation arrangements).

[677]USTA UNE Report at II-6. Covad states that it is dependent on incumbent LEC inter-office transport for 83 percent of its transport requirements and that it has a choice of transport providers for less than 7 percent of its collocation facilities. Covad Comments at 44. AT&T argues that it purchases 82% of its dedicated transport requirements from incumbent LECs because competitive offerings are not ubiquitously available. AT&T Comments at 122.

indirect, inefficient routing patterns, thereby increasing their costs of transport.[678] Thus, contrary to arguments made by incumbent LECs, we find that the evidence demonstrates that a significant number of central offices in a given MSA are not effectively served by competitive fiber facilities.

344. We reject any bright-line test that triggers elimination of an incumbent LEC's unbundling obligation based on the presence of a single competitor that has self-provisioned transport in a particular market. As discussed above, in order to determine whether or not a requesting carrier's ability to provide the services it seeks to offer is "impaired" within the meaning of section 251(d)(2), we must determine whether alternatives outside the incumbent's network are available as a practical, economic, and operational matter, and determine whether unbundling a particular element is consistent with the goals of the Act.[679]

345. In particular, we find that basing our unbundling rules on the bright- line proposed by the incumbents does not address whether lack of unbundled access to the incumbent's ubiquitous transport facilities would impair other requesting carriers' ability to provide the services they seek to offer. Indeed, under the test proposed by the incumbents, the first new entrant to deploy transport facilities in any particular market would determine the degree and pace of competition in that market as well as the scope of an incumbent LEC's unbundling obligation, and would potentially result in the

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[678]Letter from Robert Shanahan, Vice President, New England Voice & Data, to Magalie R. Salas, Secretary, Federal Communications Commission, Docket 96-98 (filed July 15, 1999) (describing Manchester, N.H. to Nashua, N.H. fiber buildout and increase of 11 miles over incumbent LEC's route if a competitive transport alternative is selected).

[679]*See supra* Section (IV)(B)(4).

presence of only two competitors in the market (*e.g.* a duopoly). Limiting the development of competition in such a manner is contrary to the goals of the Act and is inconsistent with the purpose of our unbundling rules.

346. In order to provide service, competitive LECs require dedicated transport facilities that are more extensive than those that are currently deployed along the point-to-point routes. The competitive alternatives that are available along limited point-to-point routes do not necessarily allow competitive LECs to connect their collocation arrangements or switching nodes according to the needs of their individual network designs. These carriers also require dedicated transport to deliver traffic from their own traffic aggregation points to the incumbent LEC's network for purposes of interconnection. Without access to the incumbent's ubiquitous transport facilities, competitive LECs are faced with the delays and costs of deploying their own transport facilities to meet the demand. Alternatively, competitive LEC's must utilize a patchwork of competitive alternatives, where available, to collect and route traffic to the required destination.

347. Entrance Facilities. Bell Atlantic and BellSouth specifically argue that extensive deployment by competitive LECs of the transport link between the interexchange carrier point of presence and an incumbent's serving wire center (the "entrance facility"), requires us to find that requesting carriers are not impaired in their ability to serve these point-to-point markets.[680] According to Bell Atlantic, for example, there are

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[680] *See* Letter from Susanne Guyer, Assistant Vice President, Bell Atlantic, to Magalie R. Salas, Esq., Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed August 25, 1999) (Bell Atlantic August 25 Ex Parte); Letter from Kathleen B. Levitz, Vice President -

competitors that serve approximately 90 percent of Bell Atlantic's special access transport customers.[681] According to BellSouth, 19 of their 302 wire centers have at least one actual or pending collocation arrangement and one actual or pending entrance facility.[682]

348. We acknowledge that, based on the record before us, the entrance facility market appears to be the most mature segment of the interoffice transport market, and thus may, in some situations, provide requesting carriers with effective alternatives to unbundled transport for certain point-to-point routes.[683] The record does not indicate, however, the extent to which these facilities are available to other requesting carriers or whether the location of these facilities serve the transport

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Federal Regulatory, BellSouth, to Magalie R. Salas, Esq., Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed August 16, 1999) (BellSouth August 16, 1999 Ex Parte).

[681] *See* Bell Atlantic August 25, 1999 Ex Parte.

[682] *See* BellSouth August 16, 1999 Ex Parte.

[683] We note that, in addition, Bell Atlantic, Intermedia, Allegiance and Time Warner argue, in a joint Ex Parte filing, that the Commission should establish a limitation on loop transport combinations to prevent substitution of special access service for unbundled loop transport combinations in this segment of the transport market. Letter from Edward D. Young, Associate General Counsel, Bell Atlantic, Heather B. Gold, Vice President, Industry Policy, Intermedia Communications, Robert W. McCausland, Vice President, Regulatory and Interconnection, Allegiance Telecom, Inc., Don Shepheard, Vice President, Federal Regulatory, Time Warner Telecom, to Honorable William E. Kennard, Chairman, Federal Communications Commission, CC Docket No. 96-98 (filed September 2, 1999). ALTS agrees and supports excluding entrance facilities from an incumbent LEC's transport obligation where a given point-to-point route does not meet the impair standard. Letter from Jonathan Askin, Vice President, ALTS, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed September 3, 1999).

needs of requesting carriers seeking to provide service to particular locations. In particular, the incumbents' data does not indicate the locations at which competitive entrance facilities terminate, or whether the facilities connect incumbent LEC serving wire centers to all or substantially all of the interexchange carrier points of presence. Accordingly, we cannot conclude, based on the record before us, that the competitive entrance facility market is providing requesting carriers with effective alternatives to unbundled transport for all, or substantially all of the routes requesting carriers would need in order to provide the services they seek to offer.

349. Dark Fiber. Incumbent LECs argue that some competitive LECs have deployed significant amounts of fiber to meet the growing demand for transport services, and that competitive LECs are not impaired without access to the incumbent's unbundled dark fiber.[684] Incumbent LECs further argue that the presence of competitive fiber in dense wire centers is evidence of a wholesale market for dedicated transport,[685] and support this claim by providing anecdotal evidence that competitors are swapping fiber capacity with each other.[686] We disagree. Rather, we agree with those commenters that argue that a competitive wholesale market for alternative network elements has not developed for

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[684]Bell Atlantic Comments at 31-32; GTE Comments at 82; US WEST Comments at 39-40. These carriers argue that the evidence of competitively deployed fiber has created a "wholesale market" for dark fiber.

[685]Bell Atlantic Comments at 31; BellSouth Comments at 51; GTE Comments at 61.

[686]*See* Letter from Kathleen B. Levitz, Vice President-Federal Regulatory, BellSouth to Jake Jennings, Special Advisor, Common Carrier Bureau, Federal Communications Commission, CC Docket No. 96-98 (filed July 22, 1999).

dedicated transport, in part because of the lack of ubiquitous transport alternatives.[687]

350. Although there is evidence of transport deployment by non- incumbent providers along some point-to-point routes, the record does not support a general finding that requesting carriers can, on a ubiquitous basis, practically and effectively substitute transport services provided by other competitive carriers for unbundled transport. Indeed, the record indicates that the "fiber frenzy" and "bandwidth markets" cited by incumbent LECs are largely limited to portions of inter-city, long-haul networks that do not ubiquitously reach the interoffice segments of the incumbent LEC's network.[688] Lack of access to ubiquitous transport alternatives, which allow competitive LECs to interconnect their networks with all the central offices serving their customers, will impair these carriers' ability to provide the services they seek to offer.[689] Accordingly, we reject the

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[687]AT&T Comments at 122; CompTel Comments at 42; ALTS Comments at 51.

[688]AT&T Reply Comments at 128; Covad Comments at 44-45; Waller Creek Reply Comments at 11.

[689]For Example, New England Voice & Data argues that substituting lit OC-48 fiber for unbundled dark fiber would result in a material decrease in the reliability of its network because it would introduce three additional multiplexers, and thus three additional potential points of failure, at each collocation. In addition, New England Voice & Data claims that if it were required to purchase lit transport, New England Voice & Data's control and management of its interconnection links would become totally dependent upon incumbent LECs. In contrast, if New England Voice & Data is able to obtain access to unbundled dark fiber, it installs its own multiplexers to complete its SONET ring architecture and therefore controls its own provisioning, surveillance and repair. Thus, according to New England Voice & Data, substituting lit fiber for unbundled dark fiber in the interoffice transport segment of the network prevents it from installing a

incumbent LECs' argument that the presence of a competitive transport alternatives along certain routes is evidence that requesting carriers generally are not impaired without access to the incumbents' unbundled dark fiber.

351. In addition, to the extent that there may be excess capacity along these fiber routes, non-incumbent providers of competitive transport facilities are under no legal obligation to offer their excess capacity to their competitors. Moreover, interexchange carriers (IXCs) operate both as access customers of the incumbent LEC, as well as the incumbent's competitor in the local exchange market. These inter-carrier relationships complicate the functioning of an effective wholesale transport market because the alternative provider of transport is also a significant competitor.[690] In these circumstances, it is possible that local affiliates of IXCs could potentially discriminate against unaffiliated requesting carriers seeking access to competitive transport facilities by denying access altogether.

352. Although we include dark fiber in the unbundling obligations of section 251(c)(3), we note that GTE argues that it must maintain control of its dark fiber reserves because, as a carrier of last resort, it is obliged to provide service to any and all customers as the need arises.[691] GTE also argues that requiring incumbent LECs to make their reserve capacity

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highly reliable SONET ring architecture to offer ring-based services and introduces additional failure points in a requesting carrier's end to end transport service. New England Voice & Data Comments at 12-13.

[690]Because AT&T controls TCG and MCI WorldCom controls MFS, Sprint notes that it has considerable reluctance to shifting its access dependence from potential long distance competitors, the RBOCs, to its current long distance competitors. Sprint Comments at 34.

[691]GTE Comments at 83-84.

available to new entrants discourages long term business planning and deprives the incumbents of the fruits of their investment.[692] We note that with the addition of electronics such as Dense Wave Division Multiplexing (DWDM) equipment, incumbent and competitive carriers alike can expand the bandwidth of existing capacity without installing new dark fiber.[693] We find that technological solutions such as these largely address GTE's concern that unbundled access to dark fiber may adversely affect its ability to provide service. In addition, however, if incumbent LECs are able to demonstrate to a state commission that unbundling dark fiber threatens their ability to provide service as a "carrier of last resort," states have the flexibility to establish reasonable limitations and technical parameters for dark fiber unbundling.[694] We conclude, however, that for a limitation on

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[692] *Id.* at 84.

[693] Dense Wavelength Division Multiplexing (DWDM) is a multiplexing technique that permits multiple SONET or other optical signal formats to be carried on one fiber on different wavelengths. The capacity of existing DWDM systems now exceeds several hundred gigabits per second (Gbps), and has been approximately doubling each year for the past several years. DWDM allows carriers to extend the capacity of their embedded fiber.

[694] For example, the Texas Commission allows incumbent LECs, upon establishing need to the satisfaction of the state commission, to revoke leased fiber from competitive LECs with 12 months *Notice*. The Texas commission's dark fiber unbundling rules also allow incumbent LECs to take back underused (less than OC-12) fiber, and forbid competitors in any two year period from leasing more than 25% of the dark fiber in a given segment of the network. We believe the measures established by the Texas PUC address the incumbent LEC's legitimate concerns. Texas PUC Comments at 16-17. We note that MGC, a competitive LEC that urges the Commission to unbundle dark fiber, also supports limitations such as those adopted in Texas. *See* Letter from Scott A. Sarem, Assistant Vice President, Regulatory, MGC Communications, to Christopher Libertelli, Attorney,

dark fiber to be reasonable, it must relate to a likely and foreseeable threat to an incumbent LEC's ability to provide service as a carrier of last resort. In establishing reasonable limitations and technical parameters for dark fiber, states should acknowledge that requesting carriers require regulatory certainty in order to implement their business plans.

353. Other Technologies. We reject Bell Atlantic's proposal that the Commission consider the availability of wireless transport in our unbundling analysis.[695] The record does not demonstrate that wireless transport options are available across any particular MSA. Nor does the record address the question of whether integrating wireless transport offerings into a wireline transport network allows providers to offer service of the same quality and functionality as they would be able to offer using wireline alternatives. Notably, NEXTLINK, the largest Local Multipoint Distribution Service (LMDS) licensee and a potential source of competitive wireless transport, supports the continued availability of unbundled dedicated transport network elements.[696]

354. Tariffed Offerings. We also reject GTE and US West's argument that competitive LECs have access to ubiquitous transport through the use of the incumbents' special access tariff arrangements.[697] As discussed above, we

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Common Carrier Bureau, Federal Communications Commission, CC Docket No. 96-98 (filed August 12, 1999).

[695] Bell Atlantic Comments at 30.

[696] NEXTLINK Reply Comments at 27.

[697] GTE Comments at 61, *See also* Letter from Melissa Newman, Vice President - Federal Regulatory, US West, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 at Pg. 2 (filed

give little weight to the incumbent LEC's special access tariffs.[698] Moreover, the Commission previously rejected this argument in the *Local Competition First Report and Order*.[699] For reasons the Commission articulated in that order, we reject the incumbents' argument here. If we were to adopt the incumbents' approach, the incumbents could effectively avoid all of the 1996 Act's unbundling and pricing requirements by offering tariffed services that, according to the incumbents, would qualify as alternatives to unbundled network elements. This would effectively eliminate the unbundled network element option for requesting carriers, which would be inconsistent with Congress' intent to make available to requesting carriers three different competitive strategies, including access to unbundled network elements.

355. Cost. We conclude that the costs of self-provisioning dedicated transport facilities materially diminish a requesting carrier's ability to provide the services it seeks to offer. We agree with commenters that argue that replicating the incumbent's vast and ubiquitous transport network would be prohibitively expensive, and delay competitive entry.[700] In the *Local Competition First Report and Order*, the Commission concluded that a requesting carrier would incur

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August 18, 1999) (arguing that the relevance of tariffed services as a substitute for unbundled transport in the *Local Competition First Report and Order* is "no longer valid precedent.").

[698] *See supra* Section (IV)(B)(4).

[699] *Local Competition First Report and Order*, 11 FCC Rcd at 15644, para. 287.

[700] California PUC Comments at 4-5; AT&T Comments at 96; Cable and Wireless Comments at 36; CompTel Comments at 40; CPI Comments at 21; Sprint Comments at 34-36. *See also* Letter from John J. Heitmann, representing ALTS, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed Aug 6, 1999).

"much higher costs" if it "had to construct all of its own facilities" to match the scope of an incumbent LEC's interoffice transport network.[701] Nothing has changed in the intervening three years to cause us to alter this conclusion. Indeed, based on the record before us, we conclude that the material costs and delays associated with self-provisioning duplicate, ubiquitous transport facilities would impair a competitive LEC's ability to offer services to a broad base of consumers. Accordingly, we require incumbent LECs to offer unbundled access to their dedicated transport facilities.

356. Self-provisioning dedicated transport requires competitive LECs to incur significant direct and other costs, including the cost of fiber, the cost of deploying fiber in public rights of way, trenching and the cost of purchasing and collocating the necessary transmission equipment.[702] For example, the record indicates that the direct equipment costs of purchasing interoffice transport equipment exceeds $300 per line,[703] and that the cost of constructing alternative transport facilities (*e.g.*, digging and backfilling trench) are between $200,000 - $300,000 per mile in densely populated areas.[704] According to GTE, the direct cost of constructing a one hundred mile dedicated transport facility is close to $3 million.[705]

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[701] *Local Competition First Report and Order*, 11 FCC Rcd at 15718, para. 441.

[702] This can include such things as fiber distribution panels, optical terminating equipment, multiplexers, digital cross connects, test access equipment, digital loop carrier equipment, power distribution panels, and cable racks.

[703] AT&T Comments at 121.

[704] *Id.* at 120.

[705] GTE Comments at Exhibit B, page 32.

357. In addition, in order to use alternative transport facilities, either through self-provisioning or through third-party providers, a competitive LEC must collocate at the incumbent's central office. Collocating in each end office imposes materially greater costs on requesting carriers than would the purchase of the incumbent's interoffice transport facilities. Based on the record, it appears that the current range for non-recurring charges for provisioning physical collocation arrangements is between $15,000 and $508,000 for each central office where a competitor serves customers with unbundled loops.[706] This results in an increase of between 15 and 20 percent to the costs of the equipment installed in the cage.[707] In addition to the substantial costs of constructing and collocating self-provisioned transport facilities, competitive LECs must incur additional of negotiating and obtaining municipal rights-of-way permissions.[708]

358. If a competitive LEC were required to obtain transport from multiple, non-ubiquitous alternative providers

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[706] *See* CompTel Comments at 39 (arguing that total cost of switch installation is $4-6 million).

[707] AT&T Comments at 96. *See also* Bell South Comments, Attachment A at 1 (describing $128,700 cost of purchasing necessary equipment for one collocation arrangement.).

[708] NEXTLINK states that to obtain a telecommunications franchise from the City of New York, it was required to pay "exorbitant fees" to deploy facilities in public rights of way. NEXTLINK Reply Comments at 29 (arguing that the City of New York assesses exorbitant fees and assesses a multitude of discriminatory, non-competitively neutral requirements that are not imposed on Bell Atlantic.); AT&T Comments at 121 (citing Beans Affidavit at para 12, describing 4% gross revenue fees associated with Dearborn, Michigan franchise). *See also* Allegiance Comments at 19; Sprint Comments at 33; Network Access Solutions Reply Comments at 11; NEXTLINK Reply Comments at 29; Qwest Reply Comments at 72-77;.

of transport, to the extent it is available, they would incur additional costs associated with coordinating back office billing and collection arrangements, as well as the costs associated with coordinating operational issues arising out of use of multiple vendors.[709] While we acknowledge that the precise level of costs will vary according to the business plans of each competitive LEC, we conclude that contracting with third-parties to coordinate among multiple carriers in order to serve ubiquitously would materially diminish the ability of a requesting carrier to provide the services it seeks to offer. Moreover, because purchasing transport capacity is generally less expensive at higher levels of capacity, competitive LECs using multiple providers would lose efficiencies they would otherwise achieve if they were able to aggregate their traffic over the facilities of one ubiquitous provider.[710]

359. We reject the incumbent LECs' cost models that purport to demonstrate that the fact that competitors have deployed a significant amount of fiber in downtown business districts is evidence that the cost of self-provisioning transport facilities does not impair a competitive LEC's ability to provide the service it seeks to offer.[711] We find that

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[709]Sprint Comments at 34.

[710]CompTel Comments at 42

[711]*See, e.g.*, USTA UNE Report at II-1; GTE Comments at Exhibit B, at 22-33 (Network Engineering Consultants Inc.'s "Analysis of Alternative Network Elements Available to CLECs"); Bell Atlantic Comments at Exhibit C; Decl. of R. Dean Foremann/Charles L. Jackson, at 11-18. BellSouth analyzes AT&T's existing transport facilities in one representative market, Atlanta, and estimates that AT&T could build out its existing facilities to deploy a ubiquitous transport network for an estimated average cost per month of $36 per DS1 transport facility. *See* Letter from Kathleen Levitz, Vice President - Federal Regulatory BellSouth, to Magalie

cost models estimating the costs of self-provisioning transport are highly sensitive to assumptions that are not necessarily representative of the actual market place. For example, BellSouth provides a cost model that analyzes the transport networks of several competitive LECs located in Atlanta, and projects that the costs to the competitive LECs of extending the scope of their network to reach all central offices within that city is between $35 and $38 per DS1.[712] BellSouth does not explain the difference between its model's cost estimate of $35-$38 per month, per dedicated DS1 and the cost estimate of $84 per month, per dedicated DS1 generated by a model the Commission developed in its universal service proceeding.[713] Nor does BellSouth explain why the costs generated by its model are significantly lower than the costs generated by the model developed by Hatfield Associates, Inc., which shows the cost of a DS-1 to be $110 per month.[714] Moreover, it is not clear whether BellSouth's cost estimates assume full utilization of the transport

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R. Salas, Secretary, Federal Communications Commission (filed July 30, 1999) (BellSouth estimates MCI's cost per DS1 transport at $35 per month; ICG's cost per DS1 transport at $36 per month; and e.spire's cost per DS1 transport at $38 per month). *See also* Comments of Bell Atlantic at 26; Comments of GTE at 48 (Appendix D).

[712]*See* Letter from Kathleen Levitz, Vice President - Federal Regulatory BellSouth, to Magalie R. Salas, Esq., Secretary, Federal Communications Commission (filed July 30, 1999).

[713]*See* generally Commission Takes Action to Reform Universal Service Support for Non-Rural Carriers Providing Service in High-Cost Areas and Commission Adopts Framework for Federal Universal Service High-Cost support Mechanism; Commission Seeks Comment on the Input Values for the Forward-Looking Cost Model, CC Docket No. 96-45; 96-262; 97-160, FCC No. 99-17 (released May 27, 1999).

[714]BellSouth's fill factor assumption of 75% may also not be representative of actual market conditions for requesting carriers.

facilities. For competitive LECs entering the market that have little usage, the relevant comparison between the costs of self-provisioning and purchasing unbundled transport from the incumbent should be based on the number of DS1s actually carried, not on the number of DS1s that could potentially be used by the requesting carrier.

360. Ameritech proposes the use of a model that, it asserts, shows that in two second tier cities in Ameritech's territory, it is economical for competitive LECs to build ubiquitous transport networks of less than 100 miles to wire centers with a total of 100,000 access lines.[715] Even assuming, arguendo, that Ameritech's model accurately projects the theoretical viability or profitability of extending a competitive LEC's transport network, as noted by the Supreme Court, the ability to "amass earnings" alone is not dispositive of whether or not a requesting carrier is impaired without access to the incumbent's unbundled transport.[716] We therefore find that cost models proposed by BellSouth, Ameritech, and others do not accurately indicate the extent to which the costs associated with self-provisioning transport materially diminish a requesting carrier's ability to provide the services it seeks to offer. Finally, as discussed above, we do not base our unbundling analysis on individual business case analyses.[717]

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[715]Ameritech Fitzsimmons Aff. at pg. 32.

[716]*Iowa Utils. Bd.*, 119 S. Ct. 721, 734 ("An entrant whose anticipated annual profits from the proposed service are reduced from 100% of investment to 99% of investment has perhaps been "impaired" in its ability to amass earnings, but has not ipso facto been 'impair[ed] . . . in its ability to provide the services it seeks to offer.").

[717]*See supra* Section (IV)(B)(2).

361. Timeliness. We conclude that lack of access to the incumbent's interoffice transport network would materially delay a requesting carrier entry into the local market or alternatively delay expansion of an existing carrier's service offerings. Whether requesting carriers self-provision interoffice transport, or purchase it from third-party providers, they must collocate their own equipment at the incumbent's central office. Thus, collocation is an essential prerequisite to self-provisioned and third-party provisioned transport, and the time required to collocate affects a requesting carrier's ability to provide service using dedicated transport.

362. Incumbents and requesting carriers provide different estimates about the time required to implement a single collocation arrangements in an incumbent LEC's central office. In general, competitive LECs argue that each collocation arrangement requires between six months and a year to provision.[718] In addition, these carriers argue that the delay associated with implementing collocation arrangements is compounded as competitive LECs expand their networks and seek to establish more collocation arrangements.[719]

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[718]*See supra* Section (V)(D)(1). AT&T Comments at 91 (citing collocation delays of six to eight months); CompTel Comments at 40 (stating that collocation takes several months at a minimum); MCI WorldCom Reply Comments at 52 (stating that collocation takes 6 months to a year). New England Voice & Data notes that it took six months to gain access to conduit space to pull cable 11,000 feet of fiber from Bell Atlantic's switch to New England Voice & Data's switch. New England Voice & Data Comments at 14.

[719]MCI WorldCom estimates that establishing a single collocation arrangement requires approximately five months before the arrangement is in place. MCI WorldCom also argues, however, that if a requesting carrier seeks to expand the scope of its services by requesting collocation arrangements, the collocation delay amounts to several years before it can

Incumbent LECs respond that they have provisioned collocation to requesting carriers in a timely fashion and on a broad scale.[720]

363. We acknowledge that collocation arrangements necessarily require some time to implement, and that the amount of time required to order and provision a collocation arrangement will vary from incumbent LEC to incumbent LEC and by requesting carrier. Accordingly, we do not attempt to specifically quantify what constitutes a reasonable provisioning interval for a single collocation arrangement. We agree, however, with commenters that provisioning the multiple collocation arrangements needed to provide a ubiquitous transport network within an MSA would compound significantly the inherent delays associated with provisioning a single collocation arrangement. NorthPoint contends that most incumbent LECs have imposed "governors" on the number of collocation applications they will accept.[721] Specifically, BellSouth has limited the number of collocation applications a requesting carrier may file to five per month, thereby delaying ubiquitous rollout of

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provide service. MCI WorldCom Comments, Herold Declaration, at para. 10-11.

[720]Ameritech Comments at 28, 77; SBC Reply Comments at 16; US WEST Reply Comments at 44; Bell Atlantic Reply Comments at 14; BellSouth Reply Comments at 36. SBC submitted an Ex Parte presentation which states that the average caged collocation interval in Texas is 90 days and 55-70 days for cageless collocation. In California, the average caged collocation interval is 120 days and 110 days for cageless. *See* Letter from Lincoln E. Brown, Director - Federal Regulatory, SBC, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed July 15, 1999).

[721] *See* Letter from John J. Heitmann, representing ALTS, to Magalie R. Salas, Secretary, Federal Communications Commission, CC Docket No. 96-98 (filed Aug 6, 1999).

services.[722] Requiring requesting carriers to collocate in numerous end offices in order to obtain ubiquitous transport facilities would materially delay the ability of requesting carriers to enter a market or to expand its service offerings to the greatest number of consumers.

364. Several carriers argue that the process of securing necessary access to rights-of-way, pole attachments, and conduit space significantly delays their ability to compete.[723] For example, NEXTLINK notes that it took two years to negotiate and obtain a telecommunications franchise from the City of New York before it could deploy competitive facilities, and that it must negotiate separate agreements with each municipality traversed by its fiber ring.[724] We find that the delays of this magnitude associated with obtaining authority to access public rights-of-way materially delay the ability of a requesting carrier to self-provision transport.

365. Functionality and Quality. We conclude that requiring carriers to utilize alternative sources of transport imposes functional and quality disadvantages that materially diminish a requesting carrier's opportunity to provide the services it seeks to offer. If the Commission were to adopt the incumbent LEC proposals to eliminate unbundled access to interoffice transport in areas where there are one or more alternative suppliers in the market, carriers would have to use multiple alternative suppliers, where available, for their transport requirements. Using a patchwork of transport offerings consisting of facilities acquired from competitive

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[722]*See Id.*

[723]New England Voice & Data Comments at 14; NEXTLINK Reply Comments at 28.

[724]NEXTLINK Reply Comments at 29.

LEC/competitive access providers and the incumbent LEC, in lieu of ubiquitous incumbent LEC transport facilities, would introduce additional complexity into a ubiquitous end-to-end transport network. For example, Sprint notes that when facilities of more than one carrier are involved, repair times are roughly three times longer than if the entire transport network were controlled by one carrier or provisioned exclusively through unbundled transport.[725] In addition, Sprint argues that an end-to-end transport offering provisioned by multiple providers may require several digital-to-analog and analog-to-digital conversions or protocol conversions, which could lower total connection speeds otherwise achievable with a single provider transport offering.[726] Although we do not conclude that digital-to-analog or analog-to-digital protocol conversions result in a material quality degradation, we find that, as a general matter, requiring requesting carriers to utilize a patchwork of competitive alternatives, to the extent they are available, to collect and route traffic to the required destination can result in a material degradation of quality in the service the requesting carrier to seeks to provide.

366. Goals of the Act. We recognize that requiring incumbent LECs to unbundle dedicated transport may be marginally overinclusive because of the presence of some alternative fiber along selected point-to-point routes in dense markets. We believe, however, that the benefits of uniform

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[725]Sprint notes that nationwide, incumbent LECs meet transport provisioning deadlines 90 percent of the time; while CLECs meet these dates between 48 and 68 percent of the time. Sprint Comments at 34 and Appendix B, Decl. of Kevin E. Brauer, at 4.

[726]Sprint Comments, Appendix D, "Sprint Experience with BellSouth," at 4.

transport unbundling outweigh the costs of creating a patchwork regime in which incumbent LECs would likely seek to litigate its transport unbundling obligation on particular point-to- point routes where transport alternatives are arguably available. As we stated above, unbundling requirements that provide uniformity and certainty to the market will allow new entrants and fledgling competitors to implement national and regional business plans and attract capital investment. Litigation over the incumbents' unbundling obligations requires the parties to these agreements and the state commissions that approve them to expend vast amounts of time and resources and would impede the development of competition.

367. Creating a patchwork of transport unbundling obligations would be inconsistent with the goal of the 1996 Act to facilitate rapid entry into the local exchange market. We reiterate the Commission's conclusion in the *Local Competition First Report and Order* that "[w]e recognize that there are alternative suppliers of interoffice facilities in certain areas. We are convinced, however, that entry will be facilitated if competitors have greater, not fewer, options for procuring interoffice facilities as part of their local networks, and that Congress intended for competitors to have these options available from competitors."[727] Furthermore, we believe that our decision to unbundle interoffice transport is consistent with Congress' recognition, in section 271, that providing unbundled access to interoffice transport would encourage rapid entry into the local exchange market.[728]

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[727] *Local Competition First Report and Order*, 11 FCC Rcd. 15718-15719, at para 441.

[728] 47 U.S.C. § 271(2)(B)(v).

368. We further find that the allegations of the competitive harms resulting from a uniform transport unbundling obligation are overstated. We believe that there are significant operational and technical incentives for a requesting carrier to eliminate its reliance upon transport provided by incumbent LECs over the long term.[729] Where alternative providers build transport facilities to areas exclusively served by the incumbent LEC's facilities, requesting carriers may substitute those alternative sources of transport as they become available. We therefore expect the need for unbundled transport will decrease as competitive transport networks become more ubiquitous. We will closely monitor the developments in the transport market to determine whether the transport market, or a particular segment of this market, is supplying requesting carriers with effective alternatives to the incumbent LEC's unbundled network elements when we reexamine these rules in three years.[730]

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[729]Sprint contends that better financial results, over the long run, should be achievable by increasing the return from capital dollars spend rather than continuing to expense to multiple third party transport providers. Sprint argues that dependence upon external vendors also increases the business uncertainties and risks (in terms of pricing fluctuations, quality control, choice of vendors, changes in vendor business strategy) associated with third party transport provisioning. Sprint Comments, Declaration of Kevin Brauer, at 4.

[730]*See* Letter from Ernest L. Bush, Jr., Assistant Vice President - BellSouth Telecommunications, to Lawrence Strickling, Chief, Common Carrier Bureau, Federal Communications Commission, CC Docket No. 96-98 (filed August 16, 1999) (arguing that the "entrance facilities" or POP to incumbent LEC wire center segment of the transport market has developed to such an extent that requesting carriers are not impaired without access to unbundled transport in this market segment.).

APPENDIX C

§ 51.317. Standards for Requiring the Unbundling of Network Elements

(a) *Proprietary Network Elements.* A network element shall be considered to be proprietary if an incumbent LEC can demonstrate that it has invested resources to develop proprietary information or functionalities that are protected by patent, copyright or trade secret law. The Commission shall undertake the following analysis to determine whether a proprietary network element should be made available for purposes of section 251(c)(3) of the Act:

(1) Determine whether access to the proprietary network element is "necessary." A network element is "necessary" if, taking into consideration the availability of alternative elements outside the incumbent LEC's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to the network element precludes a requesting telecommunications carrier from providing the services that it seeks to offer. If access is "necessary," then, subject to any consideration of the factors set forth under subsection (c) of this rule, the Commission may require the unbundling of such proprietary network element.

(2) In the event that such access is not "necessary," the Commission may require unbundling subject to any consideration of the factors set forth under subsection (c) of this rule if it is determined that:

(A) The incumbent LEC has implemented only a minor modification to the network element in order to qualify for proprietary treatment;

(B) The information or functionality that is proprietary in nature does not differentiate the incumbent LEC's services from the requesting carrier's services; or

(C) Lack of access to such element would jeopardize the goals of the 1996 Act.

(b) *Non-Proprietary Network Elements.* The Commission shall undertake the following analysis to determine whether a non-proprietary network element should be made available for purposes of section 251(c)(3) of the Act:

(1) Determine whether lack of access to a non-proprietary network element "impairs" a carrier's ability to provide the service it seeks to offer. A requesting carrier's ability to provide service is "impaired" if, taking into consideration the availability of alternative elements outside the incumbent LEC's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third-party supplier, lack of access to that element materially diminishes a requesting carrier's ability to provide the services it seeks to offer. The Commission will consider the totality of the circumstances to determine whether an alternative to the incumbent LEC's network element is available in such a manner that a requesting carrier can provide service using the alternative. If the Commission determines that lack of access to an element "impairs" a requesting carrier's ability to provide service, it may require the unbundling of that

element, subject to any consideration of the factors set forth under subsection (c).

(2) In considering whether lack of access to a network element materially diminishes a requesting carrier's ability to provide service, the Commission shall consider the extent to which alternatives in the market are available as a practical, economic, and operational matter. The Commission will rely upon the following factors to determine whether alternative network elements are available as a practical, economic, and operational matter:

(A) Cost, including all costs that requesting carriers may incur when using the alternative element to provide the services it seeks to offer;

(B) Timeliness, including the time associated with entering a market as well as the time to expand service to more customers;

(C) Quality;

(D) Ubiquity, including whether the alternatives are available ubiquitously;

(E) Impact on network operations.

(c) In determining whether to require the unbundling of any network element under this rule, the Commission may also consider the following additional factors:

(1) Whether unbundling of a network element promotes the rapid introduction of competition;

(2) Whether unbundling of a network element promotes facilities- based competition, investment, and innovation;

(3) Whether unbundling of a network element promotes reduced regulation;

(4) Whether unbundling of a network element provides certainty to requesting carriers regarding the availability of the element;

(5) Whether unbundling of a network element is administratively practical to apply.

(d) If an incumbent LEC is required to provide nondiscriminatory access to a network element in accordance with § 51.311 and section 251(c)(3) of the Act under § 51.319 or any applicable Commission Order, no state commission shall have authority to determine that such access is not required. A state commission must comply with the standards set forth in this §51.317 when considering whether to require the unbundling of additional network elements. With respect to any network element which a state commission has required to be unbundled under § 51.317, the state commission retains the authority to subsequently determine, in accordance with the requirements of this rule, that such network element need no longer be unbundled.

§ 51.319 Specific unbundling requirements.

(a) Local Loop and Subloop. An incumbent LEC shall provide nondiscriminatory access, in accordance with § 51.311 and section 251(c)(3) of the Act, to the local loop and subloop, including inside wiring owned by the incumbent LEC, on an unbundled basis to any requesting telecommunications carrier for the provision of a telecommunications service.

(1) Local Loop. The local loop network element is defined as a transmission facility between a distribution frame (or its equivalent) in an incumbent LEC central office and the loop demarcation point at an end-user customer premises, including inside wire

owned by the incumbent LEC. The local loop network element includes all features, functions, and capabilities of such transmission facility. Those features, functions, and capabilities include, but are not limited to, dark fiber, attached electronics (except those electronics used for the provision of advanced services, such as Digital Subscriber Line Access Multiplexers), and line conditioning. The local loop includes, but is not limited to, DS1, DS3, fiber, and other high capacity loops.

(2) Subloop. The subloop network element is defined as any portion of the loop that is technically feasible to access at terminals in the incumbent LEC's outside plant, including inside wire. An accessible terminal is any point on the loop where technicians can access the wire or fiber within the cable without removing a splice case to reach the wire or fiber within. Such points may include, but are not limited to, the pole or pedestal, the network interface device, the minimum point of entry, the single point of interconnection, the main distribution frame, the remote terminal, and the feeder/distribution interface.

(A) Inside Wire. Inside wire is defined as all loop plant owned by the incumbent LEC on end-user customer premises as far as the point of demarcation as defined in § 68.3, including the loop plant near the end-user customer premises. Carriers may access the inside wire subloop at any technically feasible point including, but not limited to, the network interface device, the minimum point of entry, the single point of interconnection, the pedestal, or the pole.

(B) Technical feasibility. If parties are unable to reach agreement, pursuant to voluntary negotiations, as to whether it is technically feasible, or whether sufficient space is available, to unbundle the subloop at the point where a carrier requests, the incumbent LEC shall have the burden of demonstrating to the state, pursuant to state arbitration proceedings under section 252 of the Act, that there is not sufficient space available, or that it is not technically feasible, to unbundle the subloop at the point requested.

(C) Best practices. Once one state has determined that it is technically feasible to unbundle subloops at a designated point, an incumbent LEC in any state shall have the burden of demonstrating, pursuant to state arbitration proceedings under section 252 of the Act, that it is not technically feasible, or that sufficient space is not available, to unbundle its own loops at such a point.

(D) *Rules for collocation*. Access to the subloop is subject to the Commission's collocation rules at §§ 51.321-323.

(E) Single point of interconnection. The incumbent LEC shall provide a single point of interconnection at multi-unit premises that is suitable for use by multiple carriers. This obligation is in addition to the incumbent LEC's obligation to provide nondiscriminatory access to subloops at any technically feasible point. If parties are unable to negotiate terms and conditions regarding a single point of interconnection, issues in

dispute, including compensation of the incumbent LEC under forward-looking pricing principles, shall be resolved under the dispute resolution processes in section 252 of the Act.

(3) *Line conditioning.* The incumbent LEC shall condition lines required to be unbundled under this section wherever a competitor requests, whether or not the incumbent LEC offers advanced services to the end-user customer on that loop.

(A) Line conditioning is defined as the removal from the loop of any devices that may diminish the capability of the loop to deliver high-speed switched wireline telecommunications capability, including xDSL service. Such devices include, but are not limited to, bridge taps, low pass filters, and range extenders.

(B) Incumbent LECs shall recover the cost of line conditioning from the requesting telecommunications carrier in accordance with the Commission's forward-looking pricing principles promulgated pursuant to section 252(d)(1) of the Act.

(C) Incumbent LECs shall recover the cost of line conditioning from the requesting telecommunications carrier in compliance with rules governing nonrecurring costs in § 51.507(e).

(D) In so far as it is technically feasible, the incumbent LEC shall test and report trouble for all the features, functions, and capabilities of conditioned lines, and may not restrict testing to voice-transmission only.

(b) *Network Interface Device.* An incumbent LEC shall provide nondiscriminatory access, in accordance with § 51.311 and section 251(c)(3) of the Act, to the network interface device on an unbundled basis to any requesting telecommunications carrier for the provision of a telecommunications service. The network interface device network element is defined as any means of interconnection of end-user customer premises wiring to the incumbent LEC's distribution plant, such as a cross connect device used for that purpose. An incumbent LEC shall permit a requesting telecommunications carrier to connect its own loop facilities to on-premises wiring through the incumbent LEC's network interface device, or at any other technically feasible point.

(c) *Switching Capability.* An incumbent LEC shall provide nondiscriminatory access, in accordance with § 51.311 and section 251(c)(3) of the Act, to local circuit switching capability and local tandem switching capability on an unbundled basis, except as set forth in § 51.319(c)(1)(B), to any requesting telecommunications carrier for the provision of a telecommunications service. An incumbent LEC shall be required to provide nondiscriminatory access in accordance with § 51.311 and section 251(c)(3) of the Act to packet switching capability on an unbundled basis to any requesting telecommunications carrier for the provision of a telecommunications service only in the limited circumstance described in § 51.319(c)(3)(B).

(1)(A) *Local Circuit Switching Capability, including Tandem Switching Capability.* The local circuit switching capability network element is defined as:

(i) Line-side facilities, which include, but are not limited to, the connection between a loop termination at a main distribution frame and a switch line card;

(ii) Trunk-side facilities, which include, but are not limited to, the connection between trunk termination at a trunk-side cross-connect panel and a switch trunk card; and

(iii) All features, functions and capabilities of the switch, which include, but are not limited to:

(1) The basic switching function of connecting lines to lines, lines to trunks, trunks to lines, and trunks to trunks, as well as the same basic capabilities made available to the incumbent LEC's customers, such as a telephone number, white page listing and dial tone, and

(2) All other features that the switch is capable of providing, including but not limited to, customer calling, customer local area signaling service features, and Centrex, as well as any technically feasible customized routing functions provided by the switch.

(B) Notwithstanding the incumbent LEC's general duty to unbundle local circuit switching, an incumbent LEC shall not be required to unbundle local circuit switching for requesting telecommunications carriers when the requesting telecommunications carrier serves end-users with four or more voice grade (DS0) equivalents or lines, and the incumbent LEC's local circuit switches are located in:

(i) The top 50 Metropolitan Statistical Areas as set forth in Appendix B of the *Third Report and Order and Fourth Further Notice of Proposed Rulemaking* in CC Docket No. 96-98, and

(ii) In Density Zone 1, as defined in § 69.123 on January 1, 1999.

(2) *Local Tandem Switching Capability.* The tandem switching capability network element is defined as:

(A) Trunk-connect facilities, which include, but are not limited to, the connection between trunk termination at a cross connect panel and switch trunk card;

(B) The basic switch trunk function of connecting trunks to trunks; and

(C) The functions that are centralized in tandem switches (as distinguished from separate end office switches), including but not limited, to call recording, the routing of calls to operator services, and signaling conversion features.

(3) *Packet Switching Capability.* (A) The packet switching capability network element is defined as the basic packet switching function of routing or forwarding packets, frames, cells or other data units based on address or other routing information contained in the packets, frames, cells or other data units, and the functions that are performed by Digital Subscriber Line Access Multiplexers, including but not limited to:

(i) The ability to terminate copper customer loops (which includes both a low band voice channel and a high-band data channel, or solely a data channel);

(ii) The ability to forward the voice channels, if present, to a circuit switch or multiple circuit switches;

(iii) The ability to extract data units from the data channels on the loops, and

(iv) The ability to combine data units from multiple loops onto one or more trunks connecting to a packet switch or packet switches.

(B) An incumbent LEC shall be required to provide nondiscriminatory access to unbundled packet switching capability only where each of the following conditions are satisfied:

(i) The incumbent LEC has deployed digital loop carrier systems, including but not limited to, integrated digital loop carrier or universal digital loop carrier systems; or has deployed any other system in which fiber optic facilities replace copper facilities in the distribution section (*e.g.*, end office to remote terminal, pedestal or environmentally controlled vault);

(ii) There are no spare copper loops capable of supporting the xDSL services the requesting carrier seeks to offer;

(iii) The incumbent LEC has not permitted a requesting carrier to deploy a Digital Subscriber Line Access Multiplexer at the remote terminal, pedestal or environmentally controlled vault or other interconnection point, nor has the requesting carrier obtained a virtual collocation arrangement at these subloop

interconnection points as defined by § 51.319(b); and

(iv) The incumbent LEC has deployed packet switching capability for its own use.

(d) Interoffice Transmission Facilities. An incumbent LEC shall provide nondiscriminatory access, in accordance with § 51.311 and section 251(c)(3) of the Act, to interoffice transmission facilities on an unbundled basis to any requesting telecommunications carrier for the provision of a telecommunications service.

(1) Interoffice transmission facility network elements include:

(A) Dedicated transport, defined as incumbent LEC transmission facilities, including all technically feasible capacity-related services including, but not limited to, DS1, DS3 and OCn levels, dedicated to a particular customer or carrier, that provide telecommunications between wire centers owned by incumbent LECs or requesting telecommunications carriers, or between switches owned by incumbent LECs or requesting telecommunications carriers;

(B) Dark fiber transport, defined as incumbent LEC optical transmission facilities without attached multiplexing, aggregation or other electronics;

(C) Shared transport, defined as transmission facilities shared by more than one carrier, including the incumbent LEC, between end office switches, between end office switches and tandem switches, and between tandem switches, in the incumbent LEC network.

(2) The incumbent LEC shall:

(A) Provide a requesting telecommunications carrier exclusive use of interoffice transmission facilities dedicated to a particular customer or carrier, or use the features, functions, and capabilities of interoffice transmission facilities shared by more than one customer or carrier.

(B) Provide all technically feasible transmission facilities, features, functions, and capabilities that the requesting telecommunications carrier could use to provide telecommunications services;

(C) Permit, to the extent technically feasible, a requesting telecommunications carrier to connect such interoffice facilities to equipment designated by the requesting telecommunications carrier, including but not limited to, the requesting telecommunications carrier's collocated facilities; and

(D) Permit, to the extent technically feasible, a requesting telecommunications carrier to obtain the functionality provided by the incumbent LEC's digital cross-connect systems in the same manner that the incumbent LEC provides such functionality to interexchange carriers.

(e) Signaling Networks and Call-Related Databases. An incumbent LEC shall provide nondiscriminatory access, in accordance with § 51.311 and section 251(c)(3) of the Act, to signaling networks, call-related databases, and service management systems on an unbundled basis to any requesting telecommunications carrier for the provision of a telecommunications service.

(1) *Signaling Networks*: Signaling networks include, but are not limited to, signaling links and signaling transfer points.

(A) When a requesting telecommunications carrier purchases unbundled switching capability from an incumbent LEC, the incumbent LEC shall provide access from that switch in the same manner in which it obtains such access itself.

(B) An incumbent LEC shall provide a requesting telecommunications carrier with its own switching facilities access to the incumbent LEC's signaling network for each of the requesting telecommunications carrier's switches. This connection shall be made in the same manner as an incumbent LEC connects one of its own switches to a signaling transfer point.

(2) *Call-Related Databases*: Call-related databases are defined as databases, other than operations support systems, that are used in signaling networks for billing and collection, or the transmission, routing, or other provision of a telecommunications service.

(A) For purposes of switch query and database response through a signaling network, an incumbent LEC shall provide access to its call-related databases, including but not limited to, the Calling Name Database, 911 Database, E911 Database, Line Information Database, Toll Free Calling Database, Advanced Intelligent Network Databases, and downstream number portability databases by means of physical access at the signaling transfer point linked to the unbundled databases.

(B) Notwithstanding the incumbent LEC's general duty to unbundle call- related databases, an incumbent LEC shall not be required to unbundle the services created in the AIN platform and architecture that qualify for proprietary treatment.

(C) An incumbent LEC shall allow a requesting telecommunications carrier that has purchased an incumbent LEC's local switching capability to use the incumbent LEC's service control point element in the same manner, and via the same signaling links, as the incumbent LEC itself.

(D) An incumbent LEC shall allow a requesting telecommunications carrier that has deployed its own switch, and has linked that switch to an incumbent LEC's signaling system, to gain access to the incumbent LEC's service control point in a manner that allows the requesting carrier to provide any call-related database-supported services to customers served by the requesting telecommunications carrier's switch.

(E) An incumbent LEC shall provide a requesting telecommunications carrier with access to call-related databases in a manner that complies with section 222 of the Act.

(3) *Service Management Systems:*

(A) A service management system is defined as a computer database or system not part of the public switched network that, among other things:

(1) Interconnects to the service control point and sends to that service control point the information and call processing instructions needed for a network switch to process and complete a telephone call; and

(2) Provides telecommunications carriers with the capability of entering and storing data regarding the processing and completing of a telephone call.

(B) An incumbent LEC shall provide a requesting telecommunications carrier with the information necessary to enter correctly, or format for entry, the information relevant for input into the incumbent LEC's service management system.

(C) An incumbent LEC shall provide a requesting telecommunications carrier the same access to design, create, test, and deploy Advanced Intelligent Network-based services at the service management system, through a service creation environment, that the incumbent LEC provides to itself.

(D) An incumbent LEC shall provide a requesting telecommunications carrier access to service management systems in a manner that complies with section 222 of the Act.

(f) *Operator Services and Directory Assistance.* An incumbent LEC shall provide nondiscriminatory access in accordance with § 51.311 and section 251(c)(3) of the Act to operator services and directory assistance on an unbundled basis to any requesting telecommunications carrier for the provision of a telecommunications service only where the incumbent LEC does not provide the requesting telecommunications carrier with customized routing or a compatible signaling protocol. Operator services are any automatic or live assistance to a consumer to arrange for billing or completion, or both, of a telephone call. Directory assistance is a service that allows subscribers to retrieve telephone numbers of other subscribers.

(g) *Operations Support Systems*: An incumbent LEC shall provide nondiscriminatory access in accordance with § 51.311 and section 251(c)(3) of the Act to operations support systems on an unbundled basis to any requesting telecommunications carrier for the provision of a telecommunications service. Operations support system functions consist of pre-ordering, ordering, provisioning, maintenance and repair, and billing functions supported by an incumbent LEC's databases and information. An incumbent LEC, as part of its duty to provide access to the pre-ordering function, must provide the requesting carrier with nondiscriminatory access to the same detailed information about the loop that is available to the incumbent LEC.

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Appendix C

Federal Communications Commission

Before the
Federal Communications Commission
Washington, DC 20554

In the Matters of	)	
Deployment of Wireline	)	CC Docket No. 98-147
Services Offering	)	
Advanced Telecommunications	)	
Capability	)	
	)	
and	)	
	)	
Implementation of the Local	)	
Competition Provisions of the	)	CC Docket No. 96-98
Telecommunications Act of 1996	)	

THIRD REPORT AND ORDER IN CC DOCKET NO. 98-147 FOURTH REPORT AND ORDER IN CC DOCKET NO. 96-98

Adopted: Nov. 18, 1999 **Released: Dec. 9, 1999**

Before the Commission: Commissioner Furchtgott-Roth concurring in part, dissenting in part, and issuing a statement.

I. INTRODUCTION AND OVERVIEW

1. Among the fundamental goals of the Telecommunications Act of 1996 (1996 Act)[1] is the

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[1]Telecommunications Act of 1996, Pub.L. 104-104, Feb. 8, 1996, 110 Stat. 56, codified at 47 U.S.C. § 151 *et seq.* (1996 Act). The 1996 Act

promotion of innovation, investment, and competition among all participants and for all services in the telecommunications marketplace, including advanced services.[2] The Commission has issued three orders in this proceeding to date, and has issued other decisions intended to promote competition in the advanced services market.[3] In this Third Report and Order

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amended the Communications Act of 1934. We refer to the Communications Act of 1934, as amended, as the "Communications Act" or the "Act."

[2]Joint Statement of Managers, S. Conf. Rep. No. 104-230, 104th Cong. 2d Sess. 1 (1996) (Joint Explanatory Statement). For purposes of this order, we use the term "advanced services" to mean high speed, switched, broadband, wireline telecommunications capability that enables users to originate and receive high-quality voice, data, graphics and video telecommunications. The term "broadband" is generally used to convey sufficient capacity -- or "bandwidth" -- to transport large amounts of information. As technology evolves, the concept of "broadband" will evolve with it: we may consider today's "broadband" services to be "narrowband" services when tomorrow's technologies appear.

[3]Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, Memorandum Opinion and Order and Notice of Proposed Rulemaking, 13 FCC Rcd 24012 (1998) (Advanced Services Order and NPRM); Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, First Report and Order and Further Notice of Proposed Rulemaking, 14 FCC Rcd 4761 (1999) (Advanced Services First Report and Order or Advanced Services First Report and Order and *FNPRM*); Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, Second Report and Order, FCC 99-330 (rel. Nov. 9, 1999) (Advanced Services Second Report and Order). *See also* GTE Telephone Operating Companies Tariff No. 1, Docket No. 98-79, Memorandum Opinion and Order, 13 FCC Rcd 22466 (1998); 1998 Biennial Regulatory Review - Modifications to Signal Power Limitations Contained in Part 68 of the Commission's Rules, CC Docket No. 98-163, Notice of Proposed Rulemaking, 1998 WL 614472 (Sept. 16, 1998); Paradyne Corporation Petition for Waiver of the Signal Power Limitations Contained in Section 68.308(e) of the Commission's Rules, File No. NSD-L-98-93, Order, 14 FCC Rcd 4496 (Com. Car. Bur. Network Servs. Div.

we take additional, important steps toward implementing Congress's goals for the deployment of competitive advanced services by instituting line sharing obligations for incumbent LECs, and establishing spectrum management policies and rules.

2. Carriers are increasingly transmitting electronic communications in digital, rather than analog form, and by means of "packet switching."[4] Packet-switched transmission of information promises a revolution in information services, communications services, and entertainment by offering businesses, residential users, schools and libraries, and other end users the ability to access and send large amounts of information quickly, reliably, and at low cost across the street or across the globe. Moreover, for wireline carriers, digital subscriber line technologies are making it possible for ordinary citizens to access various networks, such as the Internet, corporate networks, and governmental networks, at

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1999) (Paradyne Order); Petition for Waiver of the Signal Power Limitations Contained in Section 68.308(e) of the Commission's Rules, File No. NSD-L-98-135, Order, DA 99-1350, 1999 WL 556954 (Com. Car. Bur. Network Servs. Div., rel. Jul. 30, 1999) (Nortel Order).

[4]*See, e.g.*, Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, CC Docket 98-146, Notice of Inquiry, 13 FCC Rcd 15280, 15287-88, paras. 20-22 (1998) (Section 706 Report to Congress). Digital transmission technologies have been used for some time in the network 'backbone' facilities, and now are starting to appear in the local feeder and distribution plant. Packet switching technologies segment information into small pieces, called packets, assigning each packet identifying characteristics as well as a destination address. The packets traverse the network, often following many different physical paths, until they arrive at their destination and are reassembled. *See* Newton's Telecom Dictionary, 14th Ed. 1998, at 527.

high speeds through the existing copper telephone lines that connect their residences or businesses to the incumbent local exchange carriers' (LEC's) central office. The existing *infra*structure is beginning to be used in new ways that make available to average citizens a variety of new services and vast improvements to existing services. The ability of all Americans to access these high-speed, packet-switched networks will spur the growth and development of our nation.

3. Incumbent and competitive LECs are beginning to provide xDSL-based services[5] to customers in major markets nationwide.[6] These xDSL-based services provide high-speed

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[5]Today's wireline broadband services include services that use digital subscriber line technology (commonly referred to as xDSL), including ADSL (asymmetric digital subscriber line), HDSL (high-speed digital subscriber line), UDSL (universal digital subscriber line), VDSL (very-high speed digital subscriber line), and RADSL (rate-adaptive digital subscriber line) to send signals over copper wires to packet switches. The small "x" before the letters DSL signify that we are referring to DSL as a generic transmission technology, as opposed to a specific DSL "flavor." Some versions of xDSL are compatible with simultaneous analog voice transmissions over a single copper loop.

[6]Installation of Digital Subscriber Lines (DSLs) grew 300 percent in the United States for the first half of 1999. *See* TeleChoice, DSL Deployment Surges Well Beyond Projections, <http://www.telechoice.com/content/pressreleases/08171999.asp> (TeleChoice Press Release) SBC Communications Inc. (SBC) has announced plans to invest six billion dollars over a four-year period to provide DSL service to 10 million customers by the end of 1999, and 50 million customers by the end of its four- year plan. Bell Atlantic is accelerating its DSL rollout to deploy advanced services to 21 million customers by early 2000. SBC Communications Inc. News Release, SBC Launches $6 Billion Initiative to Transform it into America's Largest Single Broadband Provider, Oct. 18, 1999, <http://www.sbc.com>. *See also* Roger O. Crockett and Catherine Young, Industries, Telecommunications, Faster, Faster, Faster, BUS. WK., Oct. 18, 1999.

connections between subscribers and packet switched networks, over ordinary copper telephone "loops." Because the advanced services market is still in its developmental stage, robust competition among xDSL providers is just beginning to emerge in many markets. The economic realities of providing advanced services have also caused most xDSL providers to market primarily to large business customers. Nevertheless, both incumbent and competitive carriers appear to have recently begun to make some of the technological investment necessary to compete in the provision of advanced services to residential and small business consumers.

4. In this Order we adopt measures to promote the availability of competitive broadband xDSL-based services, especially to residential and small business customers. We amend our unbundling rules to require incumbent LECs to provide unbundled access to a new network element, the high frequency portion of the local loop. This will enable competitive LECs to compete with incumbent LECs to provide to consumers xDSL-based services through telephone lines that the competitive LECs can share with incumbent LECs. The provision of xDSL-based service by a competitive LEC and voiceband service by an incumbent LEC on the same loop is frequently called "line sharing." In addition, we adopt spectrum management policies and rules to facilitate the competitive deployment of advanced services.

5. The record shows that lack of access to the high frequency portion of the local loop materially diminishes the ability of competitive LECs to provide certain types of advanced services to residential and small business users, delays broad facilities-based market entry, and materially limits the scope and quality of competitor service offerings. The record reveals no evidence of substantial technical, economic, operational, or practical barriers to incumbent LEC

line sharing with competitors. We believe that line sharing is vital to the development of competition in the advanced services market, especially for residential and small business consumers. We believe that unbundled access to the high frequency portion of the loop can be implemented rapidly and in an equitable manner that balances the needs of both potential competitors and incumbent LECs.

6. In addition, we adopt rules in this Order that apply to spectrum compatibility and management. These rules will significantly benefit the rapid and efficient deployment of xDSL-based technologies. Specifically, we seek to encourage the voluntary development of industry standards while limiting the ability of any one class of carriers to impose unilateral and potentially anti- competitive spectrum management or compatibility rules on other xDSL providers. We believe that the spectrum policies we adopt in this Order will ensure the compatibility of technologies and minimize the risk of harmful spectrum interference among transmission services. As such, these policies will ensure that American consumers will not face undue delay in receiving the benefits of technological innovation.[7]

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[7]In this proceeding, we emphasize that we are only addressing line sharing on the network side of the demarcation point; and spectrum management policy pertaining only to the network side of the demarcation point. We clarify that equipment and lines located on the customer side of the demarcation point are subject to Part 68 of our rules. In a separate proceeding, CC Docket No. 99- 216, we have held fora and solicited comment on changes to our customer premises equipment (CPE) connection rules under Part 68. *See* Common Carrier Bureau Will Hold Fora on Deregulation/Privatization of Equipment Registration and Telephone Network Connection Rules, Public Notice, CC Docket No. 99- 216, DA 99-1108 (rel. June 10, 1999) (Part 68 Notice). Thus, the policies and rules promulgated herein do not apply to, and will not affect, CPE.

II. EXECUTIVE SUMMARY

LINE SHARING

- *Unbundling Analysis*. The high frequency portion of the loop meets the statutory definition of a network element and must be unbundled pursuant to sections 251(d)(2) and (c)(3). An incumbent LEC's failure to provide such access impairs the ability of a competitive LEC to offer certain forms of xDSL-based services. The record shows that lack of access would materially raise the cost for competitive LECs to provide advanced services to residential and small business users, delay broad facilities-based market entry, and materially limit the scope and quality of competitor service offerings. Our decision to unbundle the high frequency portion of the loop is consistent with the 1996 Act's goals of rapidly introducing competition and promoting facilities-based entry. This will promote the rapid deployment of advanced services to all Americans as mandated by section 706 of the 1996 Act.

- *Line Sharing Requirements.*

  - In order to ensure that line sharing does not significantly degrade analog voice service, incumbent LECs must provide unbundled access to the high frequency portion of the loop only to carriers seeking to provide xDSL-based service that meets one of the Commission's criteria regarding the presumption of acceptability for deployment on the same loop as analog voice service. Currently, ADSL is the most widely deployed line sharing technology meeting that presumption. As additional xDSL-based technologies that can co-exist on the same loop as analog voice service are demonstrated to meet that presumption,

incumbents must permit requesting carriers to deploy those technologies as well.

- Incumbent LECs must provide unbundled access to the high frequency portion of the loop to only a single requesting carrier, for use at the same customer address as the analog voice service provided by the incumbent.
- Incumbents are not required to provide unbundled access to the high frequency portion of the loop if they are not currently providing analog voice service to the customer.
- Subject to certain obligations, incumbent LECs may maintain control over the loop and splitter equipment and functions.

- *Loop Conditioning.* Incumbent LECs must condition loops to enable requesting carriers to provide acceptable forms of xDSL-based services over the high frequency portion of the loop unless such conditioning would significantly degrade the incumbent's analog voice service. We conclude that it would be unreasonable for incumbents to refuse to condition loops under 18,000 feet. For loops over 18,000 feet, an incumbent LEC must make an affirmative showing to the relevant state commission that such degradation will occur.
- *Subloops.* Incumbent LECs must unbundle the high frequency portion of the loop even where the incumbent LEC's voice customer is served by digital loop carrier (DLC) facilities.
- *Operational Issues.* The record shows that incumbents should be able to resolve operational issues associated with implementation of line sharing, including

modifications to operations support systems, within six months. The record shows that incumbents have a number of process alternatives available and we will allow them the flexibility to choose the best and most economically feasible of them.

- *Timing of Implementation*. The rules advanced in this Order will go into effect 30 days from the date of publication in the Federal Register. We encourage parties to amend their interconnection agreements to provide for line sharing as soon as possible.

- *State Authority*. States may, at their discretion, impose additional or modified requirements for access to this unbundled network element, consistent with our national policy framework

SPECTRUM MANAGEMENT

- *Standards-Setting*. The charter of the Network Reliability and Interoperability Council (NRIC) will be amended to charge NRIC with advising the Commission on spectrum compatibility and management of xDSL-based and other advanced services. In this capacity, NRIC will receive input from industry standards bodies, such as T1E1.4, and monitor developments within them. The NRIC will report periodically to the Commission and prepare recommendations for it.

- *Spectrum Compatibility*. We decline to adopt a federal rule on specific methods of achieving spectrum compatibility and instead will defer to the conclusions to be reached by industry standards setting bodies on this issue. As a general matter, however, the use of generic power spectral density (PSD) masks and/or a calculation-based approach appears to be the best means to address

spectrum compatibility. Taken together, these two mechanisms should protect network integrity while maximizing deployment of new competing technologies.

- *Presumption of Acceptability for Deployment.* We codify as permanent rules the rules we previously adopted on an interim basis that will govern when a loop technology is presumed acceptable for deployment. The circumstances include when the technology: (1) complies with existing industry standards; (2) has been approved by an industry standards body, the Commission, or any state commission; or (3) has been successfully deployed by any carrier without significantly degrading the performance of other services. We rely upon the states to determine whether a particular technology has significantly degraded the performance of other services.

- *Degradation of Signals.* Although we recognize the value of objective criteria to measure significant degradation, we do not have a basis in the record before us to adopt specific, objective criteria. We encourage industry standards bodies to continue addressing this issue. Based on the record before us, we believe that an objective measurement of what constitutes significant degradation should account for reductions in a service's distance (reach) and/or speed (rate), among other factors. Until industry standards bodies adopt an objective standard, carriers must apply the subjective standard we previously enunciated in the *Advanced Services First Report and Order*, namely, that significant degradation is an action that noticeably impairs a service from a user's perspective.

- We reaffirm our conclusions from the *Advanced Services First Report and Order* regarding resolution of

interference disputes. In the event that a LEC demonstrates to the relevant state commission that a deployed technology is significantly degrading the performance of other advanced services or traditional voice band services, the carrier deploying the technology shall discontinue deployment of that technology and migrate its customers to technologies that will not significantly degrade the performance of other services. We now adopt an exception to this rule: where the only service experiencing interference is itself a known disturber, that service shall not prevail against the newly deployed technology. We conclude that analog T1 service is a known disturber.

- *Interfering Technologies.* The only permissible forms of binder group management are the segregation of known disturbers and the use of the spectrum compatibility (interference protection) techniques described above. The states should determine disposition of known interfering technologies. The states may select one or more of several approaches towards disposition of known disturbers, including segregation or sunsetting of known disturbers, consistent with the national policy framework adopted in this Order.

III. BACKGROUND

A. DSL Technology

7. The circuit-switched public telecommunications network (PSTN), which interconnects virtually every home and business, was designed to provide superior voice telephony. Until recently, carriers did not consider the PSTN's architecture well suited for the provision of interactive video or high-speed data communications. Specifically, the PSTN is predominately "circuit- switched,"

maintaining an end-to-end channel of communication for the duration of each telephone call. Although this is an efficient technique for transmitting ordinary voice telephony, it is not efficient for transmitting digital information. In addition, carriers did not generally consider the copper "local loop," the telephone wire running the "last mile" to each home, capable of carrying more than a relatively modest stream of information.

8. In the near future, xDSL-based technology and packet-switched networks may account for a large portion of the telecommunications facility.[8] xDSL- based technology permits the transmission of data over the copper loop at significantly higher speeds than can be achieved by current "dial-up" analog data transmission systems and circuit-switched network systems.[9] xDSL transmission systems

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[8]Current projections indicate the following expected total xDSL line deployment levels: 575,000 by the end of 1999, 2,107,000 by the end of 2000, 5,103,000 lines by the end of 2001, and 7,655,000 lines by the end of 2002. Note that these numbers combine incumbent and competitive LEC-deployed lines, but excludes HDSL lines. TeleChoice xDSL Deployment Tracking Survey, End of Third Quarter 1999, <http://www.xdsl.com/content/resources/deployment info.asp>. *See also* Robert Rosenberg, Hard to Beat ATM is the Carrier's Silver Bullet, America's Network, May 15, 1998, <http://www.americasnetwork.com/issues/98issues/980515/980515 insight.html>.

[9]In the United States, an ordinary voice channel generally allows transmission of digital information at the rate of up to 56,000 bits per second. By contrast, the most widely deployed xDSL service (known as ADSL) allows data to be transmitted to the home or residence at up to several million bits per second, depending on loop length, loop design, and the technology deployed. Provision of xDSL service is subject to a variety of important technical constraints. One is the length of the subscriber loop: ADSL, the most widely deployed xDSL-based service, generally requires loops of less than 18,000 feet using current technology. Another is the quality of the loop, which must be free of excessive bridged taps, loading

consist of an xDSL terminating device attached to each end of an unmodified copper wire local loop. Combining xDSL-based technology with packet switching is more efficient than circuit-switched networks for the transmission of packetized data.[10]

9. In circumstances in which the xDSL-equipped line carries both POTS ("plain old telephone service") and data channels, the carrier must separate those two streams when they reach the telephone company's central office. Generally, this is done by two pieces of transmission equipment, a Digital Subscriber Line Access Multiplexer (DSLAM) and a splitter.[11] The DSLAM sends the customer's voice traffic to the public, circuit-switched telephone network and the customer's data traffic (combined with that of other xDSL users) to a packet-switched data network. Once on the packet-switched network, the data traffic is routed to the location selected by the customer, for example, a corporate local area network or an Internet service provider. That location may itself be a gateway to a new packet-switched network or set of networks, like the Internet.

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coils, and other devices commonly used to aid in the provision of analog voice and data transmission, but which interfere with the provision of xDSL services. "Conditioning" loops to remove those impediments, or constructing fiber-based digital loop carrier systems to overcome loop length difficulties, can be expensive.

[10]K.G. Coffman and Andrew Odlyzko, The Size and Growth Rate of the Internet, First Monday, Issue 3_10, <http://www.firstmonday.dk/issues/issue3 10/coffman/index.html>.

[11]The splitter's primary function is to separate the high frequency, xDSL signals, from low frequency (voiceband) analog signals traversing the copper loop. In some circumstances, the DSLAM and the splitter are combined in the same piece of equipment.

B. History of the Proceeding

10. In March 1999, we released the *Advanced Services First Report and Order*, in which we adopted several measures to promote competition in the advanced services market.[12] Specifically, we strengthened our collocation rules and implemented certain spectrum compatibility rules. In the accompanying *Further Notice of Proposed Rulemaking (FNPRM)*, we solicited comments to guide the further development of spectrum compatibility and management requirements and proposed line sharing requirements to enable competitors to offer advanced services to end-users using the same telephone line the LEC uses to offer voice services. We proposed these measures to enable advanced services providers to develop and deploy more rapidly new technologies and innovative services, benefiting consumers through lower prices and increased product choice.[13]

11. We are aware, however, that US WEST has sought judicial review of the Commission's decision that advanced services, including those utilizing xDSL- based technologies, are either exchange access or telephone exchange services. US WEST further argues that the requirements of section 251(b) and (c) do not apply to its provision of advanced

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[12]We initiated this proceeding in August 1998, in response to six petitions suggesting actions we should take to speed the deployment of advanced services by wireline carriers. *See* Advanced Services Order and NPRM, 13 FCC Rcd at 24023, 24035, paras. 21, 47-48 (noting Congress' intent to open local markets to competition by reducing inherent economic and operational advantages possessed by incumbents, particularly with respect to interconnection, access to unbundled network elements, and collocation). *See also* Advanced Services First Report and Order and *FNPRM*, 14 FCC Rcd 4784-85, at para. 42 nn.100 & 102.

[13]A list of parties that filed comments and replies in response to the *Advanced Services FNPRM* is provided in Appendix A.

services.[14] We note that the Commission has requested, and has received, a remand from the United States Court of Appeals for the District of Columbia Circuit to address US WEST's argument that the Commission is without statutory authority to require incumbent LECs to provide access to unbundled elements used in the provision of advanced services.[15] We further note that the Commission has received a more complete administrative record on this matter and we intend to fully address US WEST's arguments in the *Advanced Services Memorandum Opinion and Order and NPRM* remand proceeding.[16] The Commission must address the issues raised by US WEST within 120 days from the date of the D.C. Circuit Court's Order.

12. In remanding back to the agency, the court declined to vacate portions of the *Advanced Services Memorandum Opinion and Order and NPRM* challenged by US WEST. Accordingly, our decision in that Order that xDSL-based services are "either" telephone exchange service or exchange access service remains in effect during the pendency of the *Advanced Services Memorandum Opinion and Order and NPRM* remand proceeding.[17] We therefore have the authority to consider whether unbundling the high frequency portion of

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[14]US WEST Comments at 56 n.122.

[15]*See* US WEST v. Federal Communications Commission, Order No. 98-1410 (D.C. Cir. Aug. 25, 1999).

[16]*See* Comments Requested in Connection with Court Remand of August 1998 Advanced Services Order, Public Notice, CC Docket Nos. 98-11, 98-26, 98-32, 98-78, 98-91, 98-147, Notice, DA No.99-1853 (rel. Sept. 9, 1999).

[17]Advanced Services Order and NPRM, 13 FCC Rcd at 24032, para. 40.

the loop meets the impairment standard established in the *Local Competition Third Report and Order*.

IV. LINE SHARING

13. In this section, we adopt a requirement that incumbent LECs unbundle the high frequency portion of the loop to permit competitive LECs to provide xDSL- based services by sharing lines with the incumbent's voiceband services.[18] We find that unbundling this network element is technically feasible, presents no substantial operational issues, is legally justified, and serves the public interest. We also find that line sharing promises to bring broadband access to residential and small business consumers, and conclude that incumbents should be able to provide line sharing within 180 days of release of this Order.[19] Our decisions herein should ensure that residential and small business consumers receive the benefits of competition and innovation promised in the Act.

14. The rules and standards we adopt in this Order build on industry development and technological advances that have occurred in the telecommunications marketplace since the advent of the 1996 Act. Both incumbent LECs and requesting carriers are beginning to deploy innovative technologies to meet the demand for high-speed, high-

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[18]Voiceband services, such as POTS, are analog telecommunications services that utilize the lower frequency portion of the local loop spectrum, from 300 Hertz to at least 3000 Hertz, and potentially up to 3400 Hertz, depending on equipment and facilities.

[19]Although, in many areas, incumbent LECs are already providing both voice and xDSL services on the same loop, we believe that incumbents require approximately six months to adapt their "back office" systems to comply with the two-carrier line sharing requirements set out in this Order. *See infra* Sections IV.C.2. and IV.D.4).

capacity advanced services. To encourage competition, the market for these services must be conducive to investment and innovation, and responsive to the needs of consumers. The requirements we adopt in this Order for access to the unbundled high frequency portion of the local loop are designed to fulfill these criteria, and to be administratively practical and responsive to business needs.

A. Commission Authority to Require Incumbent LECs to Unbundle the High Frequency Portion of the Loop

1. Background

15. In the *FNPRM*, we tentatively concluded that we have authority to require line sharing and sought comment on that tentative conclusion.[20] Competitive LECs, advocacy organizations, and state and federal agencies generally agree that we have authority to mandate line sharing as an unbundled network element (UNE) pursuant to section 251(d)(2) of the Act.[21] Several commenters also argue that we have authority to mandate line sharing as an interstate special access service under sections 201 and 202 of the Act.[22] Incumbent LECs, however, argue that we lack

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[20]Advanced Services First Report and Order and *FNPRM*, 14 FCC Rcd at 4808, para. 98.

[21]California PUC Comments at 4-5; Oklahoma CC Comments at 17; ALTS Comments at 8; Primary Comments at 5; @link Comments at 5; Prism Comments at 12; NAS Comments at 8-9; NorthPoint Comments at 23, Rhythms Comments at 3-5, Rhythms Reply Comments at 5; Covad Comments at 14; Covad Reply Comments at 4.

[22]ALTS Comments at 4, 14; MCI Comments at 10; Covad Comments at 14-17, 20- 23; Intermedia Comments at 2 NAS Comments at 12; NEXTLINK Comments at 1-4, 11; NEXTLINK Reply Comments at 2; NorthPoint Comments at 23.

authority to mandate line sharing either as an UNE or as an interstate special access service. Specifically, these commenters claim that the high frequency portion of the loop cannot be considered a network element, that such consideration is premature, and that, regardless of such consideration, access to that portion of the loop is not necessary for advanced service deployment under section 706 of the 1996 Act.[23]

2. Discussion

16. We conclude that we have authority to require incumbent LECs to provide unbundled access to the high frequency spectrum of a local loop pursuant to our authority to identify a minimum list of network elements that must be unbundled on a nationwide basis.[24] Section 251(c)(3) imposes a duty on all incumbent LECs to provide to competitors access to network elements on an unbundled basis.[25] Section 251(d)(2) provides that, in determining which network elements should be unbundled under section 251(c)(3), the Commission shall consider, "at a minimum, whether -- (A) access to such network elements as are proprietary in nature is necessary; and (B) the failure to provide access to such network element would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer."[26] As discussed

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[23]GTE Comments at 4, 18; RTC Comments at 6-8, 10; US WEST Comments at 17- 19.

[24]The Supreme Court decision in Iowa Utils. Bd. supports our authority to develop a national list of unbundled elements. AT&T v. Iowa Utils. Bd., 119 S. Ct. 721, 733 (1999) (Iowa Utils. Bd.).

[25]Certain rural telephone companies may be exempt from the unbundling provisions of section 251. *See* 47 U.S.C. § 251(f).

[26]47 U.S.C. § 251(d)(2).

below, we conclude that the high frequency portion of the loop is a network element that must be unbundled pursuant to section 251(c)(3) and section 251(d)(2).

17. Line sharing generally describes the ability of two different service providers to offer two services over the same line, with each provider employing different frequencies to transport voice or data over that line.[27] Section 3(29) of the Act defines a network element as "a facility or equipment used in the provision of telecommunications services" including "features, functions, and capabilities, that are provided by means of such facility or equipment."[28] As discussed in detail below, the frequencies above those used for analog voice services on any loop are a capability of that loop.[29] Therefore, those otherwise unused frequencies that

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[27]Advanced Services First Report and Order and *FNPRM*, 14 FCC Rcd at 4805-06, para. 92. *See* GSA Comments at 5-6; Covad Comments at 4-5 and Affidavit of Anjali Joshi at 2 (Covad Joshi Aff.). Line sharing through the simultaneous use of discrete electromagnetic frequencies on a single wire pair to provide separate communications services, is the only form of line sharing considered in this Order, and is only possible on metallic loops. Thus, fiber-based transmission systems are not considered in this Order, except if specifically noted otherwise.

[28]47 U.S.C. § 153(29).

[29]This reasoning is consistent with our treatment of other unbundled network elements. For instance, in the *Local Competition Third Report and Order*, we affirmed that switch capabilities, e.g, call waiting, are part of the switching network element because a competitor's ability to access such capabilities are contingent upon access to switching. In the same order, however, we identify sub-loops and Network Interface Devices (NIDs) as separate network elements, even though the loop network element includes sub-loops and NIDs, because a competitor's sub-loop or NID access is not contingent upon its access to the entire loop. *See* Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, FCC 99- 238, at paras. 163-318 (rel. Nov. 5, 1999)

can be used for xDSL or other applications meet the definition of a "network element."

18. Specifically, sections 51.307(d) and 51.309(c) of our rules address the requesting carrier's right to loop access. These rules provide, respectively, that an incumbent LEC must provide competitors with "access to the facility or functionality of a requested network element separate from access to the facility or functionality of other network elements." The rules also state that a requesting carrier is "entitled to exclusive use" of an "unbundled network facility."[30] Consequently, although we conclude that to the extent section 251(d) is satisfied requesting carriers may access unbundled loop functionalities, such as non-voiceband transmission frequencies, separate from other loop functions, they are also "entitled," at their option, to exclusive use of the entire unbundled loop facility.[31]

19. Under the interpretation of section 251 that underlies these rules, we conclude that we have authority pursuant to section 251 to require unbundled access to the high frequency spectrum of a local loop so that carriers may use those frequencies to provide xDSL-based services while the incumbent LEC uses the voiceband frequencies for analog voice service. In light of our conclusion below to designate the high frequency spectrum as an unbundled network

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(*Local Competition Third Report and Order*). *See also* Iowa Utils. Bd., 119 S. Ct. at 734 (discussing the breadth of the network element definition in section 153(29) and the reasonableness of our earlier decisions). In this Order, we identify the high frequency portion of the loop as a separate network element because a competitor need not access the entire loop to utilize only the high frequency portion.

[30]47 C.F.R. §§ 51.307(d)), 51.309(c).

[31]Covad Comments at 19, n.34. *See also* ALTS Comments at 15.

element, we need not and do not address the arguments of some parties that we have authority to order line sharing as a special access service.[32]

B. Designation of High Frequency Loop Spectrum as an Unbundled Network Element

1. Background

20. In the *Advanced Services FNPRM*, we tentatively concluded that incumbent LECs must provide requesting carriers with access to "the transmission frequencies above that used for analog voice service on any lines that LECs use to provide exchange service."[33] We observed that without line sharing, a competitive LEC's ability to competitively provide advanced services is impaired because the competitive LEC must obtain a new unbundled loop from the incumbent LEC to provide advanced services, while the incumbent LEC can provide advanced services, at little additional expense, by using the existing local exchange service line. We also noted that line sharing would enrich consumer choice by enabling customers to keep their analog voice service with the incumbent local exchange company, while choosing a competitive LEC to provide high-speed digital services over the same line without incurring the additional expense of a second line.[34]

21. Additionally, we sought comment on whether we should more precisely define the network element that would permit shared line access, so that it is clear to all parties what

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[32] *See, e.g.*, Covad Comments at 14-18; NEXTLINK Comments at 4.

[33] Advanced Services First Report and Order and *FNPRM*, 14 FCC Rcd at 4808, para. 99.

[34] *Id.*, 14 FCC Rcd at 4806-07, para. 96.

the incumbent must unbundle to satisfy our line sharing requirements.[35] In particular, we asked commenters to evaluate the possibility of setting a specific dividing line between a low frequency channel and a high frequency channel on the loop. We were concerned, however, that doing so would arbitrarily freeze technological development and deny carriers opportunities to use the loop to provision services that use different frequency bands.[36] We tentatively concluded that our line sharing requirements should not mandate a particular technological approach to the use of a line for multiple services.[37]

22. We recently set forth our framework for determining which elements should be unbundled pursuant to sections 251(c)(3) and 251(d)(2).[38] We look first to what is happening in the marketplace to determine whether and to what extent alternatives to the incumbent's facilities are available. In the *Local Competition Third Report and Order*, we concluded that the incumbent LEC's failure to provide a non-proprietary element "impairs" a requesting carrier if, considering the availability of alternative elements outside the incumbent's network, lack of access to that element materially diminishes the requesting carrier's ability to provide the services it seeks to offer.[39] In determining whether alternative sources of network elements are actually available as a practical, economic, and operational matter, we look at specific factors

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[35] *Id.*, 14 FCC Rcd at 4809, para. 100.

[36] *Id.*

[37] *Id.*, 14 FCC Rcd at 4809, para. 101.

[38] *Local Competition Third Report and Order*, at paras. 21-116.

[39] *Id.*, at para. 51.

including cost, ubiquity, quality, timeliness, and operational impediments.[40]

23. In the *Local Competition Third Report and Order*, we stated that in addition to the "necessary" and "impair" standards set out in section 251(d)(2), the language of section 251(d)(2) and the Supreme Court decision suggest we should consider whether unbundling is consistent with the overall goals of the Act. We thus consider whether creating an unbundling obligation would (1) encourage competitors to rapidly enter the local market to serve the broadest number of consumers; (2) advance the development of facilities-based competition, while encouraging investment and innovation in new technologies and services; (3) reduce regulation where warranted; (4) provide market certainty to facilitate the creation and execution of viable new business plans; and (5) be administratively practical to apply.[41] We refrained, however, from assigning any particular weight to the individual factors, but stated that we would consider the relationship among various factors when determining whether a particular network element should be unbundled.[42]

24. In the *Local Competition Third Report and Order*, we applied the necessary and impair standards and weighed the above factors to establish a list of network elements that must be unbundled on a national basis.[43] In addition, several

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[40] *Id.*, at paras. 62-100.

[41] *Id.*, at paras. 101-116.

[42] *Id.*, at para. 106.

[43] The national list of unbundled network elements adopted in the *Local Competition Third Report and Order* include: (1) local loops, including dark fiber and high-capacity loops; (2) subloops; (3) network interface devices; (4) local switching, except under certain conditions; (5) interoffice transport; (6) signaling and call-related databases; (7) operations support systems; and

parties to that proceeding requested that we identify access to the high frequency spectrum of a local loop as a network element that must be unbundled.[44] We declined to address unbundled access to the high frequency spectrum of a local loop in the *Local Competition* proceeding, however, because the record in the instant proceeding more fully addresses this matter.

2. Discussion

25. As discussed below, we conclude that access to the high frequency spectrum of a local loop meets the statutory definition of a network element and satisfies the requirements of sections 251(d)(2) and (c)(3). It is technically feasible for an incumbent LEC to provide a competitive LEC with access to the high frequency portion of the local loop as an unbundled network element.[45] An incumbent LEC's failure to provide access impairs the ability of a competitive LEC to offer, on a competitive basis, certain forms of xDSL-based service that are capable of line sharing with voice services. The record shows that lack of access to the high frequency portion of the local loop would materially raise competitive LECs' cost of providing xDSL-based service to residential and small business users, delaying broad facilities- based market entry, and materially limiting the scope and quality of

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(8) in very limited situations, packet switching. 47 C.F.R. § 51.319; *Local Competition Third Report and Order*, at paras. 163-465.

[44]A list of parties that filed comments relating to spectrum unbundling in response to Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, Second Further Notice of Proposed Rulemaking, FCC No. 99-70 (rel. Apr. 16, 1999) (Local Competition Second *FNPRM*) is provided in Appendix A.

[45]*See infra* Section IV.C.2.

competitors' service offerings.[46] Moreover, access to the high frequency portion of the loop encourages the deployment of advanced telecommunications capability to all Americans as mandated by section 706 of the 1996 Act. Because some residential and small business markets may lack the economic characteristics that would support competitive entry in the absence of access to the high frequency spectrum of a local loop, it is clear that spectrum unbundling is crucial for the deployment of broadband services to the mass consumer market.

a. Definition

26. We define the high frequency spectrum network element to be the frequency range above the voiceband on a copper loop facility used to carry analog circuit-switched voiceband transmissions.[47] We affirm our tentative conclusion that any rules we adopt should not mandate a particular technological approach to the use of a line for multiple services.[48] As we acknowledged in the *Advanced Services First Report and Order and FNRPM*, line sharing relies on rapidly evolving technology and our requirement that incumbent LECs provide the high frequency spectrum of

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[46]California PUC Comments at 5; Oklahoma CC Comments at 4, 11; ALTS Comments at 6-7, 12; @link Comments at 4; CIX Comments at 2, 10; Covad Comments at 2, 18-22, 36-38; Inline Comments at 3; NAS Comments at 3-5, 10; NorthPoint Comments at 9-15; Primary Comments at 6; Prism Comments at 12; Rhythms Comments at 6.

[47]*See infra* Section IV.C.2. for a technical description of voiceband and non-voiceband copper loop transmission frequencies. We note that the issue of whether the voiceband meets the definition of a network element that must be unbundled pursuant to sections 251(d)(2) and (c)(3) is not before the Commission in this proceeding.

[48]Advanced Services First Report and Order and *FNPRM*, 14 FCC Rcd at 4809, para. 101.

a local loop as an unbundled network element should stimulate technological innovation.[49] We seek to ensure that, in the future, carriers are not denied the opportunity to provision services that rely on different frequency bands within the loop. Consequently, we do not set a specific dividing line between the low frequency channel and a high frequency channel on the loop.[50]

27. As we discuss in detail in section IV.D.1.b) below, we support the use of any transmission technology that is presumed acceptable for shared-line deployment with analog voice service according to the criteria already identified in the *Advanced Services First Report and Order and NPRM* and codified herein.[51] We note that industry standards are

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[49] *Id.*

[50] This "dividing line" is generally referred to as the "guard band." We do not define specifically the frequency ranges for voiceband, guard band, and advanced services transmissions. We believe that doing so may risk arbitrarily freezing technological development, and our intention in this order is to ensure that the high frequency spectrum network element definition will apply to new, as well as current, technologies that do not interfere with the provision of analog voice service. Instead, we rely on a presumption of acceptability for deployment. *See infra* Section V.B.3.

[51] Advanced Services First Report and Order and *FNPRM*, 14 FCC Rcd at 4802-05, paras. 80-91. A loop technology is presumed acceptable for deployment when the technology meets any one of the following circumstances: (1) it complies with existing industry standards; (2) it is approved by an industry standards body, the Commission, or any state commission; or (3) it has been successfully deployed by any carrier without "significantly degrading" the performance of other services. *See infra* Section V.B.3. Some xDSL technologies can "share lines" with voice service, because they do not use the frequencies in or immediately above the voiceband, thus ensuring compatibility with concurrent voiceband traffic. Not every xDSL technology, however, can be used for line sharing. HDSL and SDSL, for example, utilize voiceband frequencies, and thus are not acceptable for deployment on a shared line. *See* Covad Comments at 5.

constantly evolving, and are supported by carriers that share mutual interest in avoiding service quality degradation. We believe that compliance with the criteria supporting a presumption of technical acceptability that we identify in section V.B.3 of this Order will facilitate the development and deployment of new technologies that utilize the high frequency spectrum of the local loop to provide consumer services, while ensuring the integrity of the PSTN and legacy services.

b. Proprietary Concerns Associated with Requiring Access to the High Frequency Spectrum of the Local Loop

28. The record indicates that there are no proprietary concerns associated with unbundled access to the high frequency spectrum of the local loop.[52] No commenters argue that loop spectrum is proprietary under section 251(d)(2)(B). We do not discern any copyright, patent, or trade secrecy

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[52] *See* ALTS Comments at 11-13; NAS Comments at 8-9; NorthPoint Comments at 26-27; Rhythms Reply Comments at 8. In the *Local Competition Third Report and Order*, we stated that section 251(d)(2) establishes separate standards that apply to proprietary and non-proprietary network elements. Specifically, we stated that the "necessary" standard in section 251(d)(2)(A) is a higher standard that applies to proprietary elements or to proprietary functions within an element, and that the "impair" standard in section 251(d)(2)(B) applies to non-proprietary elements. In that order, we adopted a limited definition of "proprietary" that generally tracks the intellectual property categories of patent, copyright, and trade secrets. A proprietary network element is "necessary" within the meaning of section 251(d)(2)(A) if, taking into consideration the availability of alternative elements outside the incumbent's network, including self-provisioning by a requesting carrier or acquiring an alternative from a third party supplier, lack of access to that element would, as a practical, economic, and operational matter, preclude a requesting carrier from providing the services it seeks to offer. *Local Competition Third Report and Order*, at paras. 34-40.

implications to unbundled access to the high frequency spectrum UNE. Carriers do not generally rely upon loop spectrum to differentiate themselves from their competitors. Thus, the high frequency spectrum is not proprietary, and we need not analyze requiring access to this unbundled loop spectrum according to the "necessary" standard. We therefore apply the "impair" standard of section 251(d)(2), to determine whether the high frequency portion of the loop is subject to the Act's unbundling obligations.

c. Analysis for Unbundled Access to the High Frequency Spectrum of a Local Loop Network Element

29. Applying the standard we announced in the *Local Competition Third Report and Order*, we conclude that a lack of access to high frequency spectrum of a local loop impairs a competitive carrier's ability to offer certain forms of xDSL-based service. As described below, just as the loop itself remains a facility available only from an incumbent LEC, so too is a competitor seeking to offer certain xDSL-based services impaired if it does not have access to the high frequency spectrum of the local loop available from an incumbent LEC.[53]

30. We recognize that in the *Local Competition Third Report and Order*, the Commission concluded that cable companies and competitive LECs are actively deploying

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[53]We note that the 1996 Act does not permit the leveraging of a historic monopoly into a nascent industry or market. *See* generally, 47 U.S.C. § 251. Section 706 of the Act, however, encourages us to facilitate consumer access to low cost, high speed advanced services. Line sharing supports both of these mandates. *See* Pub.L. 104-104, Title VII, § 706, Feb. 8, 1996, 110 Stat. 153, reproduced in the notes under 47 U.S.C. § 157.

xDSL-based advanced services.[54] We held there that competitors are not impaired in their ability to provide advanced services to medium and large business users without access to the incumbents' packet switching, a component of xDSL based advanced services. We found that requesting carriers may be impaired in their ability to offer xDSL-based services to residential and small business customers without packet switching capability, but declined to order unbundling of incumbent LEC packet switching capability because of the nascent nature of the advanced services market.[55] However, we also specifically stated that impairment with regard to residential and small business segments may be due "in part, to the cost and delay of obtaining collocation in every central office where the requesting carrer provides service using unbundled loops."[56] Thus, our impairment analysis for packet switching rests in part on the assumption that the impairment results from the intermediate step of getting to the loop, not from use of the loop. Using the loop to get to the customer is fundamental to competition. The issue before us now, whether competitive LECs are impaired without access to the high frequency portion of the loop when they seek to provide various forms of xDSL-based services, is a different question than whether requesting carriers are impaired without access to unbundled packet switching.

31. Section 251 requires incumbent LECs to provide unbundled access to a network element where lack of access impairs the ability of the requesting carrier to provide the

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[54] *Local Competition Third Report and Order*, at para. 307.

[55] *Id.*, at para. 306.

[56] *Local Competition Third Report and Order*, at para. 306.

services that it seeks to offer.[57] In the *Local Competition Third Report and Order*, we found that it is appropriate to consider the specific services and customer classes a requesting carrier seeks to serve when considering whether to unbundle a network element.[58] In general, competitive LECs seeking access to the unbundled high frequency portion of the loop only seek to offer voice-compatible xDSL-based services.[59] We thus ask whether such carriers are impaired in their ability to offer such services without access to this network element.

32. As part of this analysis, we need to consider actual market activity. As we stated in the *Local Competition Third Report and Order*, what is occurring in the marketplace is relevant to our analysis of whether the cost of self-provisioning an element or obtaining it from a third party impairs the ability of a requesting carrier to provide the service it seeks to offer.[60] Looking to the marketplace, we find that most xDSL lines have been deployed to residential or small business consumers, and incumbent LECs provide service on the vast majority of these lines where their xDSL-based service shares the line with their voice service. According to one survey, incumbent LECs have gained a more than 17-1 advantage in deploying voice-compatible xDSL-based services to residential and small business subscribers. In contrast, competitive carriers are generally not

[57] 47 U.S.C. § 251(d)(2).

[58] *See Local Competition Third Report and Order*, at para. 84.

[59] GSA Comments at 7; ALTS Comments at 12; Covad Comments at 32-35; NAS Comments at 4-5; NorthPoint Comments at 14-15.

[60] *See Local Competition Third Report and Order*, at para. 82.

providing voice-compatible xDSL-based services to residential and small business consumers.[61]

33. There is no question that incumbent LECs are offering xDSL on the same line as their voice service, and competitive LECs are at a significant disadvantage in offering xDSL-based services over the same line that is used to provide voice service. Incumbent LECs generally deploy forms of xDSL-based services that can coexist with voice service on a single line.[62] This enables incumbent LECs to utilize the full capacity of the copper local loop to efficiently provide both voice and data service to a customer. As discussed below, competitive LECs seeking to deploy xDSL-based service to customers subscribing to the incumbent LEC's voice telephone service cannot deploy their xDSL with the same efficiency or at the same cost. Incumbent LECs currently do not permit competitive LECs to access the high frequency portion of the loop to provide xDSL-based services, even though the incumbent LECs utilize the high frequency portion of the loop to deploy their own services. As discussed below, this situation materially diminishes the competitive LEC's ability to provide the particular type of xDSL-based service that it seeks to offer.

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[61]Specifically, at the end of the third quarter of 1999, incumbent LECs served approximately 178,000 residential and small business customers, while competitive LECs served less than 11,000. *See* Telechoice Deployment Tracking Survey at 1, <http://www.xdsl.com/content/resources/deployment info.asp>. (TeleChoice Survey).

[62]For instance, Ameritech uses ADSL. *See* Ameritech SpeedPath Frequently Asked Questions for Homes, <http://www.ameritech.com/navigation/site/1,1935,233,00.htm>.

34. In contrast, we conclude that competitors are not impaired where they seek to deploy those versions of xDSL-based services that require a dedicated local loop, such as SDSL or HDSL, because they can procure unbundled loops to deploy such service.[63] We recognize that for larger business users, competitive and incumbent LECs have to date maintained a degree of competitive parity, acquiring similar customer volumes.[64] The larger business market tends to favor robust, high-capacity, symmetrical forms of xDSL, such as SDSL. These types of xDSL are not compatible with voice service provided over the same line in a line sharing arrangement, because they utilize the whole loop frequency spectrum. Thus, both incumbent and competitive LECs must deploy these forms of xDSL over dedicated loops. We believe that the comparable levels of market penetration between incumbent and competitive LECs indicates that competitive LECs are not impaired where they can procure unbundled loops to provide these services.[65] Moreover, the record does not indicate otherwise.

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[63] *See* 47 C.F.R. § 51.319(a).

[64] By the end of the third quarter of 1999, incumbent and competitive LECs had deployed approximately 41,000 business xDSL lines each. HDSL is not represented in these statistics, nor in the analysis below. HDSL has mostly been deployed by incumbent LECs as a substitute for analog T1 services. *See* TeleChoice Survey at 1.

[65] The TeleChoice survey reveals that competitive LECs have deployed 79 percent of their voice compatible xDSL services to business customers while incumbent LECs have deployed 19 percent of the voice compatible xDSL service to business customers. In the residential market, competitive LECs have deployed only 21 percent of their voice-compatible xDSL service to the residential market while incumbent LECs have deployed 81 percent of their voice-compatible xDSL service to the residential marketplace. The survey also points out that small business users generally choose the residential offerings of competitive and incumbent LECs. *See Id.*

35. As discussed below, we are convinced that line sharing will level the competitive playing field and enable requesting carriers to accelerate the provision of voice-compatible xDSL-based services to residential and small business customers who, to date, have not had the same level of access to competitive broadband services as larger businesses.[66] Therefore, because we expect residential and small business customers to demand voice-compatible xDSL-based services, we find that unbundled access to the high frequency portion of the loop offers the best opportunity to see these nascent markets evolve into competitive markets, just as early indications in the high-capacity offerings to larger business customers suggest that competition will take hold.[67]

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[66] *See* generally, NorthPoint Comments at 15 (arguing that incumbent contentions that competitive carriers are not impaired without shared line access are "nothing more than a naked attempt to extend their voice monopoly into broadband.").

[67] Although we highlight the dramatic impact that line sharing promises with respect to residential and small business customers that are more price-sensitive and do not consume high volumes of data transport on a per-line basis, we note that requesting carriers providing voice-compatible xDSL services to medium and large business customers are also impaired without access to the unbundled high frequency portion of the loop. This impairment occurs for much the same reason that requesting carriers are impaired in their provision of voice-compatible xDSL service to residential and small business customers. The impairment suffered by a competitor that cannot access the high frequency portion of the loop to provide voice-compatible xDSL service occurs on a line-by-line basis, in that the incumbent with access to the high frequency portion of a loop will always have an advantage over the competitor lacking such access, regardless of the nature of the customer. So long as the customer is best served with the provision of a voice-compatible line sharing technology, no amount of loop density in a geographic region will alleviate the impairment that the competitor suffers on a per-line basis.

36. *Alternatives in the Marketplace.* When we look to alternatives in the marketplace, we consider whether the competitive LEC can provide voice compatible forms of xDSL by self provisioning its own loop, by purchasing a second loop from the incumbent, by purchasing the first loop as an unbundled network element, or by obtaining the higher frequency portion of the loop from third party sources. We examine each alternative in turn, using the framework developed in the *Local Competition Third Report and Order*. We conclude that each alternative either is significantly more costly or not available ubiquitously, or both.

37. *Self-Provisioning Loops.* The record is conclusive that carriers seeking to deploy voice-compatible xDSL-based services cannot self-provision loops.[68] This finding is consistent with our conclusion in the *Local Competition Third Report and Order*, wherein we found that self-provisioning entire loops is not a viable alternative to the incumbent's unbundled loop because replicating an incumbent's vast and ubiquitous network would be prohibitively expensive and delay competitive entry.[69]

38. *Second Loop.* There are several reasons why purchasing or self- provisioning a second loop is not possible as a practical, operational or economic matter. First, second

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[68]ALTS Comments at 11-12; @link Comments at 5; Covad Comments at 19; Inline Comments at 3; NorthPoint Comments at 7, 27; Rhythms Reply Comments at 4-5; Letter from A. Richard Metzger, Jr., to Lawrence Strickling, Chief, Common Carrier Bureau, Federal Communications Commission, CC Docket No. 98-147, at 2 (filed Nov. 9, 1999) (NorthPoint Nov. 9 *Ex parte*).

[69]*Local Competition Third Report and Order*, at paras. 188-89.

loops are not ubiquitously available.[70] Refusing to unbundle the high frequency portion of the loop in this situation forecloses competitive access to the segment of consumers that lack additional copper pairs to their homes or small businesses. Where a customer premises is only addressed by one copper loop, or where end users have exhausted the facilities that serve them by installing multiple phone, modem, and fax lines, end users will have no additional facilities available at their premises which a competitive xDSL service provider could use to provide service.[71] In those situations, competitive xDSL service providers are precluded from providing the services they seek to offer, and consumers are deprived of the benefits of competition. This is particularly a problem in rural areas, where spare copper facilities are less common.[72] Without a requirement that the incumbent LEC must provide competitors with access to the high frequency portion of these loops, only the voice service provider that already controls the entire loop can provide xDSL-based service to that customer. In virtually all cases, this provider will be the incumbent LEC.[73] Thus, lack of access to the high frequency portion of the loop reduces the efficient use of existing loop plant and diminishes the scope of potential customers to whom competitive LECs can market

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[70] *Id.* at para. 182. Letter from Florence Grasso, Policy and Program Planning Division, Common Carrier Bureau, Federal Communications Commission, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147, audio tape (filed Sept. 22, 1999) (Aug. 31 Technical Forum).

[71] *See* Oklahoma CC Comments at 12-14; Rhythms Reply Comments at 4; CompTel Reply Comments at 5; NorthPoint Nov. 9 *Ex parte* at 1.

[72] *See, e.g.*, RTC Comments at 13-16.

[73] Aug. 31 Technical Forum; Covad Comments at 22; Rhythms Reply Comments at 4.

xDSL-based service, thereby limiting the competitive choices available to consumers for whom additional copper loops are not available.[74] In addition, such lack of access can accelerate the depletion of copper loops in entire communities, necessitating inefficient capital expenditures that will increase costs imposed on consumers and competitors alike. Even if there are spare pairs in the "drop" to a home or business, there are not corresponding pairs in the feeder plant connecting the neighborhood to the central office.

39. Second, if competitive LECs were to purchase or self-provision a second unbundled loop to provide voice-compatible xDSL-based services, their provisioning of service would be materially more costly, and coincidentally less efficient, than purchasing the unbundled high-frequency portion of the loop.[75] The inability of competing carriers to provide xDSL-based services over the same loop facilities that the incumbents use to provide local exchange service makes the provision of competitive xDSL-based services to customers that want a single line for both voice and data applications -- typically small businesses and mass market residential consumers -- not just marginally more expensive, but so prohibitively expensive that competitive LECs will not be able to provide such services on a sustained economic basis.[76] Accordingly, a requesting carrier providing voice-compatible xDSL-based services is impaired without access to the unbundled high frequency portion of the loop.

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[74]NorthPoint Nov. 9 *Ex parte* at 2; Rhythms Reply Comments at 4-5.

[75]NorthPoint Nov. 9 *Ex parte* at 1. *See* Rhythms Reply Comments at 4-5; MCI WorldCom Reply Comments at 15. *See also infra* Section IV.E.2.

[76]*See* Covad Comments at 8, 19; NorthPoint Comments at 27.

40. Specifically, incumbent LECs refuse to permit competitive LECs to deploy xDSL-based service to their customers on the same customer loops through which incumbents provide voice services, although incumbents regularly deploy both services on the same loop.[77] As a result, a competitive LEC providing xDSL to a customer subscribing to an incumbent LEC's voice service must provide a second customer loop for the customer's xDSL service, effectively doubling the line access charges for that customer's voice and xDSL services, and providing a distinct cost advantage to incumbent LEC-provided xDSL products.[78] The record shows that the combined collocation and unbundled loop costs, exclusive of incremental and fixed network, equipment, and overhead costs, incurred by a competitive LEC seeking to deploy xDSL service can exceed 100% of the retail price for the comparable shared-line xDSL that the incumbent offers to the same customer that the competitor is vying for.[79] The record also shows that incumbents charge requesting carriers almost as much or more, on a monthly basis, for an unbundled, conditioned loop, as the incumbent charges its retail customers for xDSL

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[77] *See, e.g.*, Oklahoma CC Comments at 11 ("the OCC is convinced that line sharing, if it is to be accomplished, must be mandated by the FCC").

[78] GTE Telephone Operating Cos. GTOC Tariff No. 1 GTOC Transmittal No. 1148, CC Docket No. 98-79, Memorandum Opinion and Order, 13 FCC Rcd 22466 (1998) (GTE DSL Tariff Order). *See also* NorthPoint Nov. 9 *Ex parte*.

[79] For example, in the San Francisco Bay area, NorthPoint's wholesale loop and collocation costs are 116% of Pacific Bell's total retail, residential, shared-line xDSL product price, before NorthPoint begins to recover the incremental and fixed costs of network, equipment, or overhead. NorthPoint Comments at 8.

service.[80] This price discrepancy between what an incumbent can charge its customer for its own shared-line xDSL and what a competitor must pay to the incumbent just to gain access to that customer materially diminishes the ability of the competitive carrier to offer voice-compatible xDSL-based services in competition with incumbent LEC.

41. It is not economical for competitive LECs to self-provision or purchase the entire loop as a second line just to obtain access to the high frequency portion of the loop.[81] The record indicates that incumbent LECs generally allocate virtually all loop costs to their voice services, then deploy a voice- compatible xDSL service such as ADSL on the same loop, allocating little or no incremental loop costs to the new

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[80]For example, Bell Atlantic charges $29.95 per month, with volume and term discount, as per Bell Atlantic Trans. No. 1138 for its ADSL service. In Virginia, Bell Atlantic will charge from $19.87 to $41.26 per month for an unbundled, conditioned loop. In Maryland, Bell Atlantic charges from $13.63 to $27.40. In New York, the rates are $21.02 and $28.26. In New Jersey, Bell Atlantic charges from $15.02 to $25.12. In Massachusetts, Bell Atlantic charges from $19.87 to $32.84. In Pennsylvania, the rates range from $13.16 to 27.74, and in Delaware, from $11.68 to $18.21. These prices do not include non- recurring line conditioning costs. Perhaps the most sharply contrasted case is New Hampshire, where Bell Atlantic charges $42.44 per month for an unbundled, conditioned loop, $12.49 above its retail xDSL price. *See* Covad Comments at 20; Rhythms Reply Comments at 8. *See also* 47 C.F.R. 51.513(c)(1), Proxies for Local Loops.

[81]*See* Covad Comments at 21; NorthPoint Nov. 9 *Ex parte* at 2 ("in cases where a separate loop is available ... DSL competitive LECs must incur 'additional non-trivial costs' by purchasing a second loop to serve their customers, whereas an incumbent LEC may use a single copper pair to offer voice and DSL services"); Rhythms Reply Comments at 8-10. *See, e.g.*, Letter from Jonathan Askin, Vice President - Law, ALTS, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147 at 6 (filed July 29, 1999) (ALTS July 29 *Ex parte*).

resulting service.[82] In contrast, when the competitive LEC procures a second loop, it must pay the incumbent LEC the full price of that unbundled loop as an unbundled network element. The cost of that additional loop often accounts for 30 to 50% of the competitor's total cost of providing service.[83] Thus, the incumbent LEC's voice- compatible xDSL service enjoys substantial cost advantages over a competitive LEC's xDSL offerings.[84]

42. Third, a competitive carrier faces a competitive disadvantage in providing xDSL over a second line when competing against the incumbent's single line offering. The incumbent is able to market its own service to customers as a quick and convenient add-on service, while the competitive carrier must persuade the customer to purchase a second

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[82] *See* Bell Atlantic Telephone Cos., et al, Memorandum Opinion and Order, FCC 98-317 (rel. Nov. 30, 1998) at para. 11 (noting incumbent LEC statements that there are no loop costs to be imputed to ADSL service). *See also* NorthPoint Comments at 7-8 (describing NorthPoint's wholesale loop and collocation costs ranging from 115% to 230% of the incumbent LECs' retail price for residential xDSL services).

[83] *See* Letter from Rodney L. Joyce, Counsel for Network Access Solutions Corp., to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Dócket 98-147, at 1 (filed Oct. 13, 1999) (NAS Oct. 13 *Ex parte*). *See also* Letter from Florence M. Grasso, Covad Communications, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket 98-147, Attachments (filed Oct. 5, 1999) (Covad Oct. 5 *Ex parte*).

[84] *See* NorthPoint Nov. 9 *Ex parte*; *See also* Letter from Jason Oxman, Senior Government Affairs Counsel, Covad, to Carol Mattey, Chief, Policy and Program Planning Division, Common Carrier Bureau, Federal Communications Commission, CC Docket No. 98-147 (filed Oct. 13, 1999) (Covad Oct. 13 *Ex parte*).

line.[85] For example, Bell Atlantic, BellSouth, and US WEST emphasize in their advertising that consumers can subscribe to their xDSL-based products without incurring the installation and additional monthly expense of acquiring an additional telephone line.[86] In comparison, consumers that desire to obtain xDSL service from competitive LECs must encounter complications and expenses, including the need to arrange for a technician to install service, that do not arise if they procure the exact same service from the incumbent LEC. Providing competitive LECs with access to the high frequency portion of the loop would remove that additional burden from consumers that prefer to obtain xDSL service from competitors.

43. Finally, we disagree with CoreComm that a decision to unbundle the high frequency portion of the loop should be no different than the Commission's analysis of DSLAMs and packet switches, which the Commission decided not to unbundle.[87] CoreComm argues that the same reasons which led the Commission to decline to unbundle packet switching

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[85]Rhythms Reply Comments at 9; Sprint Reply Comments at 5-6; CompTel Reply Comments at 14.

[86]*See* Bell Atlantic Infospeed DSL advertisement, <http://www.bellatlantic.net/home/dsl>; BellSouth FastAccess Service advertisement, < http://services.bellsouth.net/external/adsl>; US WEST MegaBit Services advertisement, <http://www.uswest.com/features/megabit> (stating that MegaBit installation is easy. "We provide the step-by-step instructions, plus a toll free number," indicating that customers can install their own shared-line MegaBit xDSL service. Connecting an additional line requires a technician to visit the customer's premises, adding to installation difficulties and expenses). *See also* Rhythms Reply Comments at 17.

[87]*See* Letter from James J. Valentino, Attorney for CoreComm, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98- 147 (filed Nov. 10, 1999) (CoreComm Nov. 10 *Ex parte*).

should lead to a Commission decision to refrain from creating a high-frequency portion of the loop UNE. We disagree. Self-provisioning switches is vastly easier, less expensive, less time consuming, less complicated, and less risky than self-provisioning the outside plant that constitutes the ubiquitous loop network. Moreover, when we considered the impairment issue with regard to packet switches in the *Local Competition Third Report and Order*, we held that the presence of " multiple requesting carriers providing service with their own packet switches is probative of whether they are impaired without access to unbundled packet switching."[88] To follow CoreComm's line of reasoning in the situation before us, we would be looking at whether competitive LECs have self-provisioned loops, or more precisely, have self-provisioned the high frequency portion of the loop in order to provide xDSL-based services. There can be little dispute that requesting carriers have not duplicated the incumbent LEC's ubiquitous loop plant and generally are not providing service with competitive loop facilities. Thus, we disagree with CoreComm that we should consider loops and packet switches as identical and therefore must be treated similarly for unbundling purposes.[89]

44. *Purchasing the First Loop*. We believe that if competitive LECs were to provide voice service in addition to xDSL-based service, they would be impaired in their ability to provide the data services they seek to offer. First, concluding that competitive LECs should be able to provide voice service on the customer's first line would impose on requesting carriers all of the cost and operational issues associated with providing circuit-switched voice services. To

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[88] *Local Competition Third Report and Order*, at para 306.

[89] *See* CoreComm Nov. 10 *Ex parte* at 4.

the extent the competitive carrier invests in its own switching facilities, it would face the same cost and operational impairments associated with collocation and the coordinated cutover process that we found in the *Local Competition Third Report and Order*.[90] Competitive carriers providing voice service would also incur the costs of providing E911 service and number portability.

45. Furthermore, requiring competitive LECs to provide voice services could require large investments in circuit switching network architectures that may have little to do with a requesting carrier's intention to offer advanced data services. Investments in circuit switched networks may only be justified by carriers that have attained sufficient scale and scope economies to justify deploying large-scale circuit switched networks.[91] For other entrants, requiring this investment diverts financial resources and management focus away from competitive LECs' ability to offer advanced services and frustrates a requesting carrier's plan to migrate telecommunication services from circuit switched to packet switched networks.[92] We find that frustrating the development of packet switched networks capable of bringing advanced telecommunications capability to all Americans is wholly inconsistent with the goals of section 706 of the 1996 Act and the deployment of efficient networks.

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[90]*Local Competition Third Report and Order*, at para. 266. We note that pursuant to our line sharing requirements, requesting carriers may provide data services without the incumbent LEC having to take the voice customer out of service through the coordinated cutover process.

[91]NEXTLINK Comments at 6.

[92]Covad Comments at 34-35; NEXTLINK Comments at 6; Rhythms Reply Comments at 10.

46. In the *Local Competition Third Report and Order*, we stated with regard to subloops, if competing carriers that need only a portion of the loop must either pay for the entire loop or forego access to that loop altogether, many consumers will be denied the benefits of competition.[93] That reasoning applies with equal force here.

47. Incumbents argue that competitors have the same competitive options as incumbents, that they are free to provide both analog voice and data services in combination, using unbundled network elements, and that as a result, competitors are not impaired without access to the high frequency portion of the loop.[94] We acknowledge that self-provisioning a circuit-switched network is not the sole means of providing voice service. In particular, requesting carriers could obtain combinations of network elements and use those elements to provide circuit-switched voice service as well data services.[95] This would relieve a competitive carrier from the need to make significant investments in switching technology that may soon become obsolete.

48. We find, however, that despite its ability to purchase transmission facilities from the incumbent to provide voice service, a competitor is still impaired if it must provide analog voice service in order to enter the market for voice-compatible xDSL services. There are additional costs associated with being a provider of voice service than the cost

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[93] *Local Competition Third Report and Order*, at para. 211.

[94] Bell Atlantic Comments at 5-6; GTE Comments at 24, 26; USTA Comments at 5.

[95] In this scenario, a requesting carrier would essentially share the line with itself by attaching a splitter to the loop at a technically feasible point and separating the voiceband from the high frequency portion of the loop to provide both voice and xDSL services.

of the circuit switches. In particular, a competitive carrier would need to develop marketing, billing, and customer care *infra*structure designed to service the needs of its voice customers. In addition, competitive LECs seeking to enter the traditional voice services market must deploy sales and marketing forces, and invest in creating a recognizable brand. To compete against incumbent LECs that have a long history providing voice services, competitors must overcome the substantial goodwill, experience and market power of the incumbent LECs. These factors make it a considerable challenge for competitive LECs to motivate a consumer to adopt a new local exchange provider that offers much the same service that the consumer already receives from the incumbent LEC.[96]

49. We are confident that competitors can rise to this challenge. At this time however, we find that competitive LECs would be impaired even if they attempted to provide multi-service offerings including voice-compatible xDSL services. In addition, we note that it is likely that competitive market entry would take longer to accomplish because competitors would need to develop all of these additional capabilities. To be sure, competitive LECs may well decide to diversify their offerings at some point in the future. But such action should occur in response to marketplace forces, not regulatory fiat. To conclude otherwise would be to ignore the statutory directive in section 251(d)(2) that requires the

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[96]One means by which the competitor can entice the consumer to switch is to provide analog voice services at a lower price. Local voice service, however, is priced in response to a number of historical, public policy, and regulatory factors, such as Universal Service obligations, and various state and local regulations. Carl Shapiro and Hal R. Varian, Information Rules, HARV. BUS. SCH. PRESS, 1999, at 212-214.

Commission to consider whether a requesting carrier is impaired "to provide the services that it seeks to offer."[97]

50. Our unbundling analysis acknowledges that requesting carriers may address the impairment they face in the absence of line sharing by capturing their own efficiencies and offering integrated or innovative product offerings to customers.[98] For example, in the absence of line sharing, requesting carriers could offer multiple services, such as voice and data, over a single loop to capture the additional revenues associated with local and long distance voice services. Alternatively, requesting carriers could offer innovative bundles of services to customers to counter an incumbent LEC who provides voice and data services on a single loop.[99]

51. As discussed above, however, our unbundling analysis favors an analytical approach that considers the totality of the circumstances a requesting carrier will face, rather than a specific business case analysis, to determine whether lack of access to particular network elements materially diminishes a requesting carrier's ability to provide the services it seeks to offer. We do not rely upon the presence of a particular innovative business plan as a response to whether a requesting carrier is impaired because

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[97]47 U.S.C. § 251(d)(2).

[98]*See Local Competition Third Report and Order*, at para. 258. ("We find however, that facilities-based competitors need not deploy switches in exactly the same network configuration as an incumbent, thus allowing competitors to achieve their own unique and competitive efficiencies by deploying their own switches.")

[99]*See* Letter from A Richard Metzger, Jr., Counsel for NorthPoint, to Magalie Roman Salas, Secretary, Federal Communications Commission (filed Nov. 4, 1999) (NorthPoint and Tandy Nov. 4 *Ex parte*).

of the variety and difficulty of predicting the success of such a plan. We held in the *Local Competition Third Report and Order* that "such an approach would require the Commission to make specific assumptions regarding the competitor's business model, including which technology a competitor would choose to deploy, which market a competitor would choose to enter (*e.g.*, business and/or residential), and what services a competitor would choose to offer."[100] We find no evidence in the record to support the conclusion that a requesting carrier's ability to spread the costs of a loop between multiple services fully addresses a requesting carrier's impairment without access to line sharing. Accordingly, we disagree with parties who contend that a requesting carrier can adopt a business plan that requires it to provide voice services to address the impairment associated with the lack of access to line sharing.[101]

52. Nothing in our decision to require incumbent LECs to implement line sharing pursuant to specific rules adversely affects a requesting carrier's ability to provide new services or execute innovative business plans. To the contrary, there is evidence that requesting carriers have premised innovative marketing arrangements upon the presence of a line sharing requirement.[102] Requesting carriers providing only voice compatible xDSL services also propose to offer innovative voice over xDSL services when commercially practicable.[103]

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[100] *Local Competition Third Report and Order*, at para. 257.

[101] *See* Ameritech Comments at 3-6; Bell Atlantic Comments at 2-7; BellSouth Comments at 12-13; SBC Comments at 14-16; US WEST Comments at 20-22; CoreComm Nov. 10 *Ex parte* at 3-4.

[102] *See* NorthPoint and Tandy Nov. 4 *Ex parte*.

[103] CIX Comments at 11; Oklahoma CC Comments at 21; NEXTLINK Comments at 6- 7; Sprint Reply Comments at 11.

By requiring line sharing, requesting carriers are able to begin to build a base of data customers and focus their innovation efforts upon providing packet-switched services which may substitute for traditional voice services over time. We find that requiring incumbent LECs to provide line sharing therefore, does not harm innovation. Conversely, requiring requesting carriers to provide voice services would divert a requesting carrier's resources away from innovative packet-switched services, such as voice over xDSL, that requesting carriers seek to provide.

53. *Third Party Sources*: Finally, the record also shows that requesting carriers are not presently obtaining the high frequency portion of the loop from third-party sources rather than from an incumbent LEC under the section 251(c) unbundling obligation. At this time, there is no evidence of such alternatives in the record, nor are we aware of competitive LECs that provide analog voice services offering to partner with competitive LECs offering data services to share unbundled loops obtained from incumbent LECs, although such partnerships could develop in the future. CoreComm notes that some competitive LECs are beginning to form alliances with the intention of offering combined data and voice-over-DSL and integrated voice and data transmission packages.[104] We support this type of cooperation, but distinguish voice-over-DSL and other forms of packetized voice transmission from the analog voiceband transmission that is fundamental to the line sharing we consider in this Order. Packet-based voice services are not yet a market substitute for traditional analog voice service. Packet-based services do not provide lifeline services during emergency situations such as power outages and do not

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[104]CoreComm Nov. 10 *Ex parte*.

generally offer E- 911 functionality.[105] As we held in the *Local Competition Third Report and Order*, our unbundling analysis looks to what is occurring in the marketplace today, not hypothetical business cases.[106]

54. *Goals of the Act*: Our decision to unbundle the high frequency portion of the loop is consistent with the 1996 Act's goals of rapid introduction of competition and the promotion of facilities-based entry. Moreover, our decision to require spectrum unbundling is consistent with Congress's mandate that the Commission encourage the deployment of advanced telecommunications capability in section 706 of the 1996 Act.[107] We are convinced that line sharing will enable requesting carriers to accelerate the provision of xDSL-based service to residential and small business customers who, to date, have not had the same level access to competitive broadband services as larger businesses.[108]

55. Because line sharing ensures the deployment of xDSL technologies and ensures that consumers will have at least a single choice in xDSL providers, even where only one loop is available, it also benefits the residents of rural areas. For example, because of the increasing constraints on the availability of second, stand-alone loops and the high cost of

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[105]E-911 functionality requires that the voice-over-DSL service terminate on a circuit switch, creating the same sort of difficulties and impairments that competitive LECs face when trying to deploy circuit-switched analog voice services.

[106]*Local Competition Third Report and Order*, at para. 257.

[107]The principle section of the 1996 Act concerning advanced telecommunications services is Section 706, Pub.L. 104-104, Title VII § 706, Feb. 8, 1996, 110 Stat. 153, reproduced in the notes under 47 U.S.C. § 157. *See also* CIX Comments at 8.

[108]Rhythms Reply Comments at 5.

provisioning data services on such loops, failure to unbundle the high frequency spectrum of the local loop would cause residential and small business customers to forego competitive alternatives or the ability to receive xDSL-based service at all, particularly in rural areas. In instances where only one loop is available, a requesting carrier cannot obtain line sharing, and if the incumbent LEC chooses not to offer xDSL-based services, a consumer will not be able to obtain x-DSL based services. In instances where two loops are available and the incumbent LEC chooses to offer xDSL-based services, absent line sharing, a competitive LEC seeking to offer xDSL-based service would likely encounter a Hobson's choice between providing xDSL-based service at a significantly higher price than the incumbents, or take a significant economic loss in order to compete against the incumbent's price. The incumbent's price, however, is significantly lower because the incumbent deploys its voice-compatible xDSL service at little or no incremental cost by utilizing the same loop that it uses for local exchange service.[109] Should the competitive LEC choose to bypass a

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[109] *See* Covad Comments at 21. For the purposes of this discussion, we assume that the competitor's retail price includes the cost of the extra customer access line, regardless of whether that line is purchased by the customer from the incumbent, or by the competitor as an unbundled network element. Thus, where the competitive carrier relies on the customer to procure the second line, and the incumbent and the competitor's xDSL offerings are, for example, retail priced at $29.95 per month, the apparent cost, from the customer's perspective, of the competitor's service, is higher than that of the incumbents by the amount that the incumbent charges for the second line, since a second line is not required for the incumbent's product. Where the competitor procures the second line as an unbundled network element, the competitor's cost for that line constitutes a large cost element (and a revenue stream for the incumbent) that the incumbent does not incur in its retail xDSL offering. *See* NEXTLINK Comments at 6-7; Rhythms Reply Comments at 7-9.

rural area because of this situation, rural customers are then afforded only the option of subscribing to the incumbent LEC's xDSL service. It is an important goal of this Commission that competitive providers of xDSL and other broadband services do not bypass rural areas as competition brings more choices to consumers, in terms of price, quality, and types of services.

56. Some commenters argue that unbundling the high frequency portion of the loop will dampen investment by competitive LECs that offer voice services.[110] We do not believe that facilitating competition in xDSL services will necessarily diminish the competitive opportunity in the provision of voice services. Certainly, offering voice service is not a technical prerequisite to the provision of xDSL service on a particular loop. Rather, it is the fact that the incumbent is already providing voice service on a loop that makes the preservation of competitive access to the high frequency portion of that loop so vital. Without line sharing, competitors would face substantial barriers to market entry, such as additional required investment for voiceband equipment and facilities, and the difficulties of competing against an entrenched, market-dominant competitor.[111] Requiring that competitors provide both voice and xDSL services, or none at all, effectively binds together two distinct services that are otherwise technologically and operationally distinct. Such bundling, whether through self-provisioning or through partnerships, will not drive additional investment dollars toward voice, because it does not make voice more

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[110]Bell Atlantic Comments at 4; GTE Comments at 1-2; RTC Comments at 5; USTA Comments at 4, 7; CoreComm Nov. 10 *Ex parte* at 3.

[111]Covad Comments at 32-35; NorthPoint Comments at 13-15.

lucrative, but will drive investment away from the provision of advanced services, such as xDSL-based services, undermining the Congressional intention articulated in section 706 of the 1996 Act.[112] In addition, without line sharing consumers would need to forego their current voice service provider, virtually always an incumbent LEC, in order to subscribe to a competitive LEC's xDSL service, which robs consumers of market choices.[113]

57. Moreover, the availability of shared-line access will encourage data carriers to continue investing in network facilities such as DSLAMs, interoffice networks, and backbone facilities, and should promote further innovation in xDSL technologies.[114] We conclude that unbundling the high frequency portion of the loop will not deter investment by facilities-based competitive LECs that plan to offer a full range of services to consumers, including both voice and data services.[115] We expect that such carriers will be able to

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[112]NorthPoint Reply Comments at 8; Rhythms Reply Comments at 4.

[113]NorthPoint Reply Comments at 9.

[114]*See* Covad Comments; Letter from Thomas M. Koutsky, Assistant General Counsel, Covad, to Magalie Roman Salas, Secretary, Federal Communications Commission, CC Docket No. 98-147 at 3 (filed Sept. 1, 1999) (Covad Sept. 1 *Ex parte*) (arguing that the availability of competitive advanced services will drive investment and innovation such as fiber transport to suburban and low- density areas, and the implementation of next-generation remote-terminal technology). *See also* Oklahoma CC Comments at 21-22; ALTS Comments at 7; Sprint Comments at 15; Rhythms Reply Comments at 4.

[115]*See* CoreComm Nov. 10 *Ex parte*, at 1-2, 4. ("It is difficult to see why the Commission would expect [competitive LECs] to construct their own loop facilities or to procure unbundled [incumbent LEC] loops if a rival can offer both voice and high-speed data services over the same loop but without having to pay the full TELRIC price of that loop.") *See also infra* Section IV.D.1) (discussing requirement that competitive LEC may only

differentiate themselves from competitive LECs offering only data services by offering consumers the benefits of one-stop shopping, or by providing access to superior facilities or technology. In addition, we do not agree that providing competitors with the option to deliver data services will permit incumbent LECs to become entrenched in the provision of voice service. We believe that product integration and technological innovation will, over time, enable competitive LECs continue to compete with incumbents for the provision of a full range of services.[116]

58. We also disagree with US WEST's argument that the *Advanced Services FNPRM* fails to recognize the Commission's "hands-off treatment of the dominant providers of advanced services - cable operators - and its heavy regulation of incumbent LECs."[117] US WEST states that the requirement that incumbent LECs unbundle the high frequency loop spectrum network element to permit competitive LECs to provide xDSL services "violates principles of competitive neutrality" in the advanced services market.[118] US WEST contends that, contrary to its treatment of incumbent LECs, the Commission has refrained from imposing any unbundling obligations on cable operators.[119]

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access the high frequency portion of the loop where an incumbent LEC is already providing analog voiceband service on that loop). We note that this arrangement presupposes that the incumbent LEC will be charging the customer the line access charge, which exceeds the TELRIC price for an unbundled loop.

[116]NEXTLINK Comments at 6.

[117]US WEST Comments at 3. *See* SBC Reply Comments at 9.

[118]US WEST Reply Comments at 32-33. *See* Bell Atlantic Comments at 6-7; BellSouth Comments at 12-13.

[119]US WEST Reply Comments at 33.

59. We note that the Act explicitly makes distinctions based on a common carrier's prior monopoly status.[120] Therefore, US WEST's argument is inapposite to the issue at hand. We have not yet determined whether the provision of Internet access through a cable modem is a cable service,[121] telecommunications service,[122] or information service,[123] and therefore potentially subject to Title VI or Title II of the Communications Act.[124] We have determined, however, that lack of access to the high frequency portion of the incumbent's local loop impairs a competitive carrier's ability to offer advanced services, and that unbundling this network

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[120]Compare, for example, section 251(b), which describes the interconnection obligations placed on all LECs, to section 251(c), which places additional obligations on incumbent LECs.

[121]The term "cable service" means "(A) the one-way transmission of (i) video programming, or (ii) other programming service, and (B) subscriber interaction, if any, which is required for the selection or use of such video programming or other programming service." 47 U.S.C. § 602(6).

[122]A "telecommunications service" is defined as "the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of facilities used." 47 U.S.C. § 3(46).

[123]An "information service" is defined as "the offering of a capability for generating, acquiring, storing, transforming, processing, retrieving, utilizing, or making available information via telecommunications, and includes electronic publishing, but does not include any use of any such capability for the management, control, or operation of a telecommunications system or the management of a telecommunications service. 47 U.S.C. § 3(20).

[124]The Commission's Cable Services Bureau recently stated that it "is not persuaded that consumers are at risk of cable establishing a bottleneck monopoly in broadband services in the absence of immediate regulatory action." Broadband Today, A Staff Report to William E. Kennard, Chairman, Federal Communications Commission, at 42, Oct. 1999, <http://www.fcc.gov/csb/>.

element furthers the goals of the Act.[125] Therefore, we conclude that it is appropriate to unbundle access to the high frequency portion of the local loop, regardless of the regulatory status of cable modem Internet access.

60. While we cannot predict the impact that technological developments will have upon the ongoing need for the line sharing rules that we establish in this Order, our actions at this time need only respond to, and are well justified by, current market, technology, and industry conditions. Given the rapid changes in technology, competition, and the economic conditions of the telecommunications market, however, we expect that the conditions justifying our line sharing requirements will change over time. We therefore expect to reevaluate the applicability of unbundling obligations to the high frequency spectrum of the local loop in the course of our periodic review of the national rules for unbundled network elements.[126]

61. Specifically, we expect to reexamine our national list of network elements that are subject to the unbundling obligations of the Act every three years.[127] As we stated in the *Local Competition Third Report and Order*, we believe that revisiting our national network element unbundling rules in three years will provide carriers and capital markets the time and regulatory certainty they need to implement business plans.[128] Thus, combining the review of our line sharing rules

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[125] *See supra* Section IV.B.

[126] *See Local Competition Third Report and Order*, at para. 146. *See also* 47 U.S.C. §§ 251(d)(1) - (2).

[127] *Id.*, at para. 149.

[128] *Id.*

with our review of our other national rules for unbundled network elements will facilitate a more comprehensive and technologically neutral approach.

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APPENDIX B

Final Rules

Part 51 of Title 47 of the Code of Federal Regulations is amended as follows:

PART 51 -- INTERCONNECTION

1. The authority for part 51 continues to read as follows:

Authority: Sections 1-5, 7, 201-05, 207-09, 218, 225-27, 251-54, 271, 332, 48 Stat. 1070, as amended, 1077; 47 U.S.C. 151-55, 157, 201-05, 207-09, 218, 225-27, 251-54, 271, 332, unless otherwise noted.

2. In § 51.5, the following definitions are added in alphabetical order, to read as follows:

§ 51.5 Terms and definitions.

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Binder or *binder group*. Copper pairs bundled together, generally in groups of 25, 50 or 100.

* * * * *

Known disturber. An advanced services technology that is prone to cause significant interference with other services deployed in the network.

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3. In Section 51.319, paragraph (h) is added, to read as follows:

§ 51.319 Specific unbundling requirements.

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(h) High Frequency Portion of the Loop.

(1) The high frequency portion of the loop network element is defined as the frequency range above the voiceband on a copper loop facility that is being used to carry analog circuit-switched voiceband transmissions.

(2) An incumbent LEC shall provide nondiscriminatory access in accordance with section 51.311 of these rules and section 251(c)(3) of the Act to the high frequency portion of a loop to any requesting telecommunications carrier for the provision of a telecommunications service conforming with section 51.230 of these rules.

(3) An incumbent LEC shall only provide a requesting carrier with access to the high frequency portion of the loop if the incumbent LEC is providing, and continues to provide, analog circuit-switched voiceband services on the particular loop for which the requesting carrier seeks access.

(4) *Control of the Loop and Splitter Functionality.* In situations where a requesting carrier is obtaining access to the high frequency portion of the loop, the incumbent LEC may maintain control over the loop

and splitter equipment and functions, and shall provide to requesting carriers loop and splitter functionality that is compatible with any transmission technology that the requesting carrier seeks to deploy using the high frequency portion of the loop, as defined in this subsection, provided that such transmission technology is presumed to be deployable pursuant to section 51.230.

(5) *Loop Conditioning*.

(i) An incumbent LEC must condition loops to enable requesting carriers to access the high frequency portion of the loop spectrum, in accordance with sections 51.319(a)(3), and 51.319(h)(1). If the incumbent LEC seeks compensation from the requesting carrier for line conditioning, the requesting carrier has the option of refusing, in whole, or in part, to have the line conditioned, and a requesting carrier's refusal of some or all aspects of line conditioning will not diminish its right of access to the high frequency portion of the loop.

(ii) Where conditioning the loop will significantly degrade, as defined in section 51.233, the voiceband services that the incumbent LEC is currently providing over that loop, the incumbent LEC must either (A) locate another loop that has been or can be conditioned, migrate the incumbent LEC's voiceband service to that loop, and provide the requesting carrier with access to the high frequency portion of the alternative loop; or (B) make a showing to the relevant state commission that the original loop cannot be

conditioned without significantly degrading voiceband services on that loop, as defined in section 51.233, and that there is no adjacent or alternative loop available that can be conditioned or to which the customer's voiceband service can be moved to enable line sharing.

(iii) If the relevant state commission concludes that a loop cannot be conditioned without significantly degrading the voiceband service, the incumbent LEC cannot then or subsequently condition that loop to provide advanced services to its own customers without first making available to any requesting carrier the high frequency portion of the newly- conditioned loop.

(6) *Digital Loop Carrier Systems*. Incumbent LECs must provide to requesting carriers unbundled access to the high frequency portion of the loop at the remote terminal as well as the central office, pursuant to section 51.319(a)(2) and section 51.319(h)(1).

(7) *Maintenance, Repair, and Testing*.

(i) Incumbent LECs must provide, on a nondiscriminatory basis, physical loop test access points to requesting carriers at the splitter, through a cross-connection to the competitor's collocation space, or through a standardized interface, such as an intermediate distribution frame or a test access server, for the purposes of loop testing, maintenance, and repair activities.

(ii) An incumbent seeking to utilize an alternative physical access methodology may request approval to do so from the relevant state

commission, but must show that the proposed alternative method is reasonable, nondiscriminatory, and will not disadvantage a requesting carrier's ability to perform loop or service testing, maintenance or repair.

4. New § 51.230 is added, to read as follows:

§ 51.230 Presumption of acceptability for deployment of an advanced services loop technology.

(a) An advanced services loop technology is presumed acceptable for deployment under any one of the following circumstances, where the technology:

(1) complies with existing industry standards; or

(2) is approved by an industry standards body, the Commission, or any state commission; or

(3) has been successfully deployed by any carrier without significantly degrading the performance of other services.

(b) An incumbent LEC may not deny a carrier's request to deploy a technology that is presumed acceptable for deployment unless the incumbent LEC demonstrates to the relevant state commission that deployment of the particular technology will significantly degrade the performance of other advanced services or traditional voiceband services.

(c) Where a carrier seeks to establish that deployment of a technology falls within the presumption of

acceptability under paragraph (a)(3) of this section, the burden is on the requesting carrier to demonstrate to the state commission that its proposed deployment meets the threshold for a presumption of acceptability and will not, in fact, significantly degrade the performance of other advanced services or traditional voice band services. Upon a successful demonstration by the requesting carrier before a particular state commission, the deployed technology shall be presumed acceptable for deployment in other areas.

5. New § 51.231 is added, to read as follows:

§ 51.231 Provision of information on advanced services deployment.

(a) An incumbent LEC must provide to requesting carriers that seek access to a loop or high frequency portion of the loop to provide advanced services:

(1) information with respect to the spectrum management procedures and policies that the incumbent LEC uses in determining which services can be deployed; and

(2) information with respect to the rejection of the requesting carrier's provision of advanced services, together with the specific reason for the rejection; and

(3) information with respect to the number of loops using advanced services technology within the

binder and type of technology deployed on those loops.

(b) A requesting carrier that seeks access to a loop or a high frequency portion of a loop to provide advanced services must provide to the incumbent LEC information on the type of technology that the requesting carrier seeks to deploy.

(1) Where the requesting carrier asserts that the technology it seeks to deploy fits within a generic power spectral density (PSD) mask, it also must provide Spectrum Class information for the technology.

(2) Where a requesting carrier relies on a calculation-based approach to support deployment of a particular technology, it must provide the incumbent LEC with information on the speed and power at which the signal will be transmitted.

(c) The requesting carrier also must provide the information required under paragraph (b) of this section when notifying the incumbent LEC of any proposed change in advanced services technology that the carrier uses on the loop.

6. New § 51.232 is added, to read as follows:

§ 51.232 Binder group management.

(a) With the exception of loops on which a known disturber is deployed, the incumbent LEC shall be prohibited from designating, segregating or reserving particular loops or binder groups for use solely by any particular advanced services loop technology.

(b) Any party seeking designation of a technology as a known disturber should file a petition for declaratory ruling with the Commission seeking such designation, pursuant to § 1.2 of this chapter.

7. New § 51.233 is added, to read as follows:

§ 51.233 Significant degradation of services caused by deployment of advanced services.

(a) Where a carrier claims that a deployed advanced service is significantly degrading the performance of other advanced services or traditional voiceband services, that carrier must notify the deploying carrier and allow the deploying carrier a reasonable opportunity to correct the problem. Where the carrier whose services are being degraded does not know the precise cause of the degradation, it must notify each carrier that may have caused or contributed to the degradation.

(b) Where the degradation asserted under paragraph (a) of this section remains unresolved by the deploying carrier(s) after a reasonable opportunity to correct the problem, the carrier whose services are being degraded must establish before the relevant state commission that a particular technology deployment is causing the significant degradation.

(c) Any claims of network harm presented to the deploying carrier(s) or, if subsequently necessary, the relevant state commission, must be supported with specific and verifiable information.

(d) Where a carrier demonstrates that a deployed technology is significantly degrading the performance of other advanced services or traditional

voice band services, the carrier deploying the technology shall discontinue deployment of that technology and migrate its customers to technologies that will not significantly degrade the performance of other such services.

(e) Where the only degraded service itself is a known disturber, and the newly deployed technology satisfies at least one of the criteria for a presumption that it is acceptable for deployment under section 51.230, the degraded service shall not prevail against the newly-deployed technology.

* * * * * *

Appendix D

United States Court of Appeals,
District of Columbia Circuit.

UNITED STATES TELECOM ASSOCIATION,
Petitioner
v.
FEDERAL COMMUNICATIONS COMMISSION and
United States of America, Respondents
BELL ATLANTIC TELEPHONE COMPANIES, et al.,
Intervenors
UNITED STATES TELECOM ASSOCIATION,
Petitioner
v.
FEDERAL COMMUNICATIONS COMMISSION and
United States of America, Respondents
AT & T CORPORATION, et al., Intervenors.

No. 00-1012.

Sept. 4, 2002.

Before: EDWARDS and RANDOLPH, Circuit Judges, and WILLIAMS, Senior Circuit Judge.

ORDER

PER CURIAM.

Upon consideration of intervenor WorldCom, Inc.'s, petition for rehearing or, in the alternative, for partial stay of the mandate, and the responses thereto, it is

ORDERED that the petition for rehearing be denied. It is

FURTHER ORDERED that the motion for partial stay of the mandate be granted. The vacatur of the Commission's

orders is hereby stayed until January 2, 2003. *See In the Matter of Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers; Implementation of the Local Competition Provisions of the Telecommunications Act of 1996; Deployment of Wireline Services Offering Advanced Telecommunications Capability,* Notice of Proposed Rulemaking, 16 F .C.C.R. 22781, 22818 at ¶ 81 (2001) (FCC is currently reviewing rules for triennial review that is to be completed in 2002).

The Clerk is directed to issue a partial mandate in No. 00-1012, et al. and in No. 00-1015, et al. in the normal course.

Appendix E

UNITED STATES CODE ANNOTATED
TITLE 47. TELEGRAPHS, TELEPHONES, AND RADIOTELEGRAPHS
CHAPTER 5--WIRE OR RADIO COMMUNICATION
SUBCHAPTER II--COMMON CARRIERS
PART II--DEVELOPMENT OF COMPETITIVE MARKETS

§ 251. Interconnection

(a) General duty of telecommunications carriers

Each telecommunications carrier has the duty--

(1) to interconnect directly or indirectly with the facilities and equipment of other telecommunications carriers; and

(2) not to install network features, functions, or capabilities that do not comply with the guidelines and standards established pursuant to section 255 or 256 of this title.

(b) Obligations of all local exchange carriers

Each local exchange carrier has the following duties:

(1) Resale

The duty not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of its telecommunications services.

(2) Number portability

The duty to provide, to the extent technically feasible, number portability in accordance with requirements prescribed by the Commission.

(3) Dialing parity

The duty to provide dialing parity to competing providers of telephone exchange service and telephone toll service, and the duty to permit all such providers to have nondiscriminatory access to telephone numbers, operator services, directory assistance, and directory listing, with no unreasonable dialing delays.

(4) Access to rights-of-way

The duty to afford access to the poles, ducts, conduits, and rights-of-way of such carrier to competing providers of telecommunications services on rates, terms, and conditions that are consistent with section 224 of this title.

(5) Reciprocal compensation

The duty to establish reciprocal compensation arrangements for the transport and termination of telecommunications.

(c) Additional obligations of incumbent local exchange carriers

In addition to the duties contained in subsection (b) of this section, each incumbent local exchange carrier has the following duties:

(1) Duty to negotiate

The duty to negotiate in good faith in accordance with section 252 of this title the particular terms and conditions of agreements to fulfill the duties described in paragraphs (1) through (5) of subsection (b) of this section and this subsection. The requesting telecommunications carrier also has the duty to negotiate in good faith the terms and conditions of such agreements.

(2) Interconnection

The duty to provide, for the facilities and equipment of any requesting telecommunications carrier, interconnection with the local exchange carrier's network--

(A) for the transmission and routing of telephone exchange service and exchange access;

(B) at any technically feasible point within the carrier's network;

(C) that is at least equal in quality to that provided by the local exchange carrier to itself or to any subsidiary, affiliate, or any other party to which the carrier provides interconnection; and

(D) on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, in accordance with the terms and conditions of the agreement and the requirements of this section and section 252 of this title.

(3) Unbundled access

The duty to provide, to any requesting telecommunications carrier for the provision of a telecommunications service, nondiscriminatory access to network elements on an unbundled basis at any technically feasible point on rates, terms, and conditions that are just, reasonable, and nondiscriminatory in accordance with the terms and conditions of the agreement and the requirements of this section and section 252 of this title. An incumbent local exchange carrier shall provide such unbundled network elements in a manner that allows requesting carriers to combine such elements in order to provide such telecommunications service.

(4) Resale

The duty--

(A) to offer for resale at wholesale rates any telecommunications service that the carrier provides at retail to subscribers who are not telecommunications carriers; and

(B) not to prohibit, and not to impose unreasonable or discriminatory conditions or limitations on, the resale of such telecommunications service, except that a State commission may, consistent with regulations prescribed by the Commission under this section, prohibit a reseller that obtains at wholesale rates a telecommunications service that is available at retail only to a category of subscribers from offering such service to a different category of subscribers.

(5) Notice of changes

The duty to provide reasonable public notice of changes in the information necessary for the transmission and routing of services using that local exchange carrier's facilities or networks, as well as of any other changes that would affect the interoperability of those facilities and networks.

(6) Collocation

The duty to provide, on rates, terms, and conditions that are just, reasonable, and nondiscriminatory, for physical collocation of equipment necessary for interconnection or access to unbundled network elements at the premises of the local exchange carrier, except that the carrier may provide for virtual collocation if the local exchange carrier demonstrates to the State commission that physical collocation is not practical for technical reasons or because of space limitations.

(d) Implementation

(1) In general

Within 6 months after February 8, 1996, the Commission shall complete all actions necessary to establish regulations to implement the requirements of this section.

(2) Access standards

In determining what network elements should be made available for purposes of subsection (c)(3) of this section, the Commission shall consider, at a minimum, whether--

(A) access to such network elements as are proprietary in nature is necessary; and

(B) the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer.

(3) Preservation of State access regulations

In prescribing and enforcing regulations to implement the requirements of this section, the Commission shall not preclude the enforcement of any regulation, order, or policy of a State commission that--

(A) establishes access and interconnection obligations of local exchange carriers;

(B) is consistent with the requirements of this section; and

(C) does not substantially prevent implementation of the requirements of this section and the purposes of this part.

(e) Numbering administration

(1) Commission authority and jurisdiction

The Commission shall create or designate one or more impartial entities to administer telecommunications numbering and to make such numbers available on an equitable basis. The Commission shall have exclusive jurisdiction over those portions of the North American Numbering Plan that pertain to the United States. Nothing in this paragraph shall preclude the Commission from delegating to State commissions or other entities all or any portion of such jurisdiction.

(2) Costs

The cost of establishing telecommunications numbering administration arrangements and number portability shall be borne by all telecommunications carriers on a competitively neutral basis as determined by the Commission.

(3) Universal emergency telephone number

The Commission and any agency or entity to which the Commission has delegated authority under this subsection shall designate 9-1-1 as the universal emergency telephone number within the United States for reporting an emergency to appropriate authorities and requesting assistance. The designation shall apply to both wireline and wireless telephone service. In making the designation, the Commission (and any such agency or entity) shall provide appropriate transition periods for areas in which 9-1-1 is not in use as an emergency telephone number on October 26, 1999.

(f) Exemptions, suspensions, and modifications

(1) Exemption for certain rural telephone companies

(A) Exemption

Subsection (c) of this section shall not apply to a rural telephone company until (i) such company has received a bona fide request for interconnection, services, or network elements, and (ii) the State commission determines (under subparagraph (B)) that such request is not unduly economically burdensome, is technically feasible, and is consistent with section 254 of this title (other than subsections (b)(7) and (c)(1)(D) thereof).

(B) State termination of exemption and implementation schedule

The party making a bona fide request of a rural telephone company for interconnection, services, or network elements shall submit a notice of its request to the State commission. The State commission shall conduct an inquiry for the purpose of determining whether to terminate the exemption under subparagraph (A). Within 120 days after the State commission receives notice of the request, the State commission shall terminate the exemption if the request is not unduly economically burdensome, is technically feasible, and is consistent with section 254 of this title (other than subsections (b)(7) and (c)(1)(D) thereof). Upon termination of the exemption, a State commission shall establish an implementation schedule for compliance with the request that is consistent in time and manner with Commission regulations.

(C) Limitation on exemption

The exemption provided by this paragraph shall not apply with respect to a request under subsection (c) of this section, from a cable operator providing video programming, and seeking to provide any telecommunications service, in

the area in which the rural telephone company provides video programming. The limitation contained in this subparagraph shall not apply to a rural telephone company that is providing video programming on February 8, 1996.

(2) Suspensions and modifications for rural carriers

A local exchange carrier with fewer than 2 percent of the Nation's subscriber lines installed in the aggregate nationwide may petition a State commission for a suspension or modification of the application of a requirement or requirements of subsection (b) or (c) of this section to telephone exchange service facilities specified in such petition. The State commission shall grant such petition to the extent that, and for such duration as, the State commission determines that such suspension or modification--

(A) is necessary--

(i) to avoid a significant adverse economic impact on users of telecommunications services generally;

(ii) to avoid imposing a requirement that is unduly economically burdensome; or

(iii) to avoid imposing a requirement that is technically infeasible; and

(B) is consistent with the public interest, convenience, and necessity.

The State commission shall act upon any petition filed under this paragraph within 180 days after receiving such petition. Pending such action, the State commission may suspend enforcement of the requirement or requirements to which the petition applies with respect to the petitioning carrier or carriers.

(g) Continued enforcement of exchange access and interconnection requirements

On and after February 8, 1996, each local exchange carrier, to the extent that it provides wireline services, shall provide exchange access, information access, and exchange services for such access to interexchange carriers and information service providers in accordance with the same equal access and nondiscriminatory interconnection restrictions and obligations (including receipt of compensation) that apply to such carrier on the date immediately preceding February 8, 1996 under any court order, consent decree, or regulation, order, or policy of the Commission, until such restrictions and obligations are explicitly superseded by regulations prescribed by the Commission after February 8, 1996. During the period beginning on February 8, 1996 and until such restrictions and obligations are so superseded, such restrictions and obligations shall be enforceable in the same manner as regulations of the Commission.

(h) Definition of incumbent local exchange carrier

(1) Definition

For purposes of this section, the term 'incumbent local exchange carrier' means, with respect to an area, the local exchange carrier that--

(A) on February 8, 1996, provided telephone exchange service in such area; and

(B)(i) on February 8, 1996, was deemed to be a member of the exchange carrier association pursuant to section 69.601(b) of the Commission's regulations (47 C.F.R. 69.601(b)); or

(ii) is a person or entity that, on or after February 8, 1996, became a successor or assign of a member described in clause (i).

(2) Treatment of comparable carriers as incumbents

The Commission may, by rule, provide for the treatment of a local exchange carrier (or class or category thereof) as an incumbent local exchange carrier for purposes of this section if:

(A) such carrier occupies a position in the market for telephone exchange service within an area that is comparable to the position occupied by a carrier described in paragraph (1);

(B) such carrier has substantially replaced an incumbent local exchange carrier described in paragraph (1); and

(C) such treatment is consistent with the public interest, convenience, and necessity and the purposes of this section.

(i) Savings provision

Nothing in this section shall be construed to limit or otherwise affect the Commission's authority under section 201 of this title.

Appendix F

NEWS

Federal Communications Commission
News Media Information 202 / 418-0500
445 12 th Street, SW. Interact: http:/www.fcc.gov
Washington, D. C. 20554 TTY: 1-888-835-5322

This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action. See MCI v. FCC. 515 2d 385 (D.C. Circ 1974)

FOR IMMEDIATE RELEASE NEWS MEDIA CONTACT:
July 23, 2002 Mike Balmoris at (202) 418-0253
Email: mbalmori@fcc.gov

FEDERAL COMMUNICATIONS COMMISSION RELEASES DATA ON LOCAL TELEPHONE COMPETITION

Washington, D.C. - The Federal Communications Commission (FCC) today released summary statistics of its latest data on local telephone service competition in the United States. Telecommunications service providers file data on lines in service to end-user customers and mobile wireless telephone subscribership twice a year in the Commission's local competition and broadband data gathering program (FCC Form 477).

Reporting of state-level data is mandatory for carriers with at least 10,000 switched access lines, or at least 10,000 mobile wireless telephone service subscribers, in a state. Statistics released today summarize FCC Form 477 filings

made by qualifying providers on March 1, 2002, and reflect data as of December 31, 2001.

Summary Statistics

- End-user customers obtained local telephone service over some 173 million incumbent local exchange carrier (ILEC) switched access lines, almost 20 million competitive local exchange carrier (CLEC) switched access lines, and about 122 million mobile wireless telephone service subscriptions.

- Total CLEC switched access lines increased by 14% during the last half of 2001, from 17.3 million to 19.7 million lines; among these, cable-telephony lines increased by almost 20%, from nearly 1.9 million to over 2.2 million lines. By comparison, total CLEC lines increased by 16% during the preceding six months, from 14.9 million to 17.3 million lines.

- The 2.2 million reported cable-telephony lines constituted about 11% of switched access lines provided by CLECs and about 1% of total switched access lines.

- About 10.2% of the more than 192 million total switched access lines were reported by CLECs, compared to 7.7% a year earlier.

- Nearly one-half of CLEC switched access lines served residential and small business customers, compared to over three-quarters of ILEC lines. CLECs reported 6.6% of total residential and small

business switched access lines, compared to 5.5% six months earlier and 4.6% a year earlier.

- CLECs reported providing about 22% (a decline from 43% two years earlier) of their switched access lines by reselling the services of other carriers and about 47% (an increase from 24% two years earlier) by means of unbundled network element (UNE) loops, including the UNE-Platform, leased from other carriers. The remainder of CLEC lines was provided over local-loop facilities owned by the CLECs.

- ILECs reported providing about 21% more UNE loops with switching (including the UNE-Platform) to other carriers at the end of 2001 as they reported six months earlier (5.8 million compared to 4.8 million) and about 16% more UNE loops without switching (3.7 million compared to 3.2 million).

- At least one CLEC was serving local telephone service end-user customers in 62% of the nation's zip codes at the end of 2001, up from 56% a year earlier. About 91% of United States households resided in these zip codes. CLECs reported customers in the District of Columbia, in Puerto Rico, and in all states except Delaware.

As additional information becomes available, it will be routinely posted on the Commission's Internet site.

The statistical summary is available in the FCC's Reference Information Center, Courtyard Level, 445 12th Street, S.W. Copies may be purchased from the

Commission's duplicating contractor, Qualex International, Portals II, 445 12th Street, S.W., Room CY-B402, Washington, D.C., telephone (202) 863-2893, facsimile (202) 863-2898, or via e-mail qualexint@aol.com. The statistical summary can also be downloaded from the FCC-State Link Internet site at www.fcc.gov/wcb/stats.

- FCC -

Wireline Competition Bureau contacts: Industry Analysis and Technology Division at (202) 418-0940, TTY (202) 418-0484.

Local Telephone Competition: Status as of December 31, 2001

Industry Analysis and Technology Division Wireline Competition Bureau

July 2002

Local Telephone Competition: Status as of December 31, 2001

We present here summary statistics of the latest data on local telephone service competition in the United States as reported in the Commission's local competition and broadband data gathering program (FCC Form 477). The summary statistics provide a snapshot of local telephone service competition based on switched access lines in service and state-specific mobile wireless telephone subscribership as of December 31, 2001.[1]

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[1]Qualifying carriers reported data as of December 31, 2001 in FCC Form 477 filings due on March 1, 2002. Qualification status is determined separately for each state. If a carrier, or its holding company, has at least 10,000 local telephone lines in service in a state, it must file local telephone data for that state. *See Local Competition and Broadband Reporting*, CC Docket No. 99-301, Report and Order, 15 FCC Rcd 7717 (2000). Earlier FCC Form 477 filings reported data as of December 31, 1999, June 30, 2000, December 31, 2000, and June 30, 2001. *See* Industry Analysis Division, Common Carrier Bureau, *Local Telephone Competition at the New Millennium* (August 2000); *Local Telephone Competition: Status as of June 30, 2000* (December 2000); *Local Telephone Competition: Status as*

Based on the latest information now available, readers can draw the following broad conclusions:

- Competitive local exchange carriers (CLECs) reported 19.7 million (or 10.2%) of the approximately 192 million nationwide switched access lines in service at the end of December 2001, compared to 17.3 million (or 9.0% of nationwide lines) in June 2001. This represents a 14% growth in CLEC market size during the second half of 2001. See Table 1.

- Nearly one-half of reported CLEC switched access lines served residential and small business customers, compared to over three-quarters of incumbent local exchange carrier (ILEC) lines. See Table 2.

- CLECs reported providing about one-third of switched access lines over their own local loop facilities.[2] To serve the remainder, CLECs resold the

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of December 31, 2000 (May 2001); and *Local Telephone Competition: Status as of June 30, 2001* (February 2002) available at www.fcc.gov/wbb/stats. Readers interested in the specific questions and reporting instructions for this data collection can download FCC Form 477, and associated Instructions, from www.fcc.gov/formpage.html. FCC Form 477 replaced a previous, voluntary data gathering program which was administered by the Common Carrier Bureau. *See Local Competition and Broadband Reporting*, CC Docket No. 99-301, Notice of Proposed Rulemaking, 14 FCC Rcd 18106 (1999).

[2]A reporting carrier should own the "last mile" of wire, cable, or optical fiber that connects to the end-user premises (or have obtained radio spectrum for the equivalent fixed wireless facility) if it reports providing the local telephone line over its own facilities. In general, local exchange and exchange access lines provisioned over facilities (other than dark fiber) and

services of other carriers or used unbundled network element (UNE) loops that they leased from other carriers.[3] See Table 3.

- Since December 1999, the percentage of CLEC switched access lines reported to be provisioned by reselling services had declined steadily, to 22% at the end of December 2001, and the percentage provisioned over UNE loops has grown, to 47%.[4] See Table 3.

- ILECs reported providing about 4 million switched access lines to other carriers on a resale basis at the end of December 2001, down from 4.4 million six

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services obtained from another carrier are not the reporting carrier's "own facilities" for purposes of FCC Form 477, irrespective of whether those facilities or services are obtained under interconnection arrangements, under tariff, or by other means. In particular, owning the switch that provides dialtone (and other services) over a UNE loop leased from another carrier does not qualify a line as being provisioned over the reporting carrier's own facilities.

[3]From CLECs, FCC Form 477 collects information on the percentage of the CLECs' switched access lines provided over "UNE loops." For purposes of FCC Form 477, this term includes UNE loops leased from an unaffiliated carrier on a stand-alone basis and also UNE loops leased in combination with UNE switching or any other unbundled network element. For definitions of the various unbundled network elements, *see Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket 96-98, Third Report and Order and Fourth Further Notice of Proposed Rulemaking, 15 FCC Rcd 3696, 3932-3952 (1999).

[4]Table 8 provides state-level detail for the December 2001 data summarized in Table 3. Comparable information for the earlier reporting periods is available at www.fcc.gov/wcb/stats.

months earlier.[5] They reported providing almost 9.5 million UNE loops to other carriers, up from 7.9 million six months earlier.[6] See Table 4.

- UNE loops provided with ILEC switching (which includes the so-called UNE-Platform[7]) have increased faster than UNE loops provided without switching. See Table 4.

- Local telephone service was provided over about 2.2 million coaxial cable connections at the end of December 2001. These cable-telephony lines constituted about 1 % of nationwide switched access lines in service and about 11% of such CLEC lines. See Table 5. By contrast, there were about 122 million subscribers to mobile wireless telephone services. See Table 11.

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[5]The numbers reported by ILECs may be slightly understated because smaller carriers are not required to report data. However, as the reporting ILECs account for about 98% of all ILEC lines, the understatement should not be large. (All ILECs, whether or not they normally report to the FCC, provide data on the number of telephone lines served to the National Exchange Carrier Association for use in conjunction with the Commission's universal service mechanism.) We are less certain about the extent to which comparable lines as reported by CLECs are understated as a result of the state-specific reporting threshold, but we expect such understatement to be larger, on a percentage basis, than for ILECs.

[6]The reported number of UNE loops provided without ILEC switching in Table 4 includes some UNE loops that ILECs supply to DSL-service providers who do not also provide local telephone service. Because no local telephone service is provided by means of such UNE loops, they are not included in the end-user local telephone lines reported by CLECs.

[7]"UNE-Platform" is the combination of unbundled loops, switches, and transport elements.

- The Commission's data collection program collates information about CLEC local telephone service lines (and the CLEC share of total local telephone service lines) in individual states. Relatively large numbers of CLEC lines are associated with the more populous states.[8] With respect to the calculated CLEC share of switched access lines in service, however, some less populous states, such as Rhode Island, Nebraska, and Utah, had larger CLEC shares than some more populous states, such as California, Florida, and Ohio, at the end of 2001. See Tables 6 and 7.

- The percentage of CLEC switched access lines reported to serve residential and small business customers varies among the states, and is generally lower than the corresponding ILEC percentage.[9] See Table 9.

- At least one CLEC reported switched access lines in service in the District of Columbia, in Puerto Rico, and in all states except Delaware at the end of 2001.[10]

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[8]The first and second largest numbers of CLEC lines are reported for New York and Texas which are, respectively, the third and second most populous states. The most populous state, California, has the third largest number of CLEC lines reported.

[9]The exception is Virginia, for which 72% of CLEC lines are reported to serve residential or small business customers, compared to 70% of reported ILEC lines.

[10]Under Section 3(40) of the Communications Act the term *state* "includes the District of Columbia and the Territories and possessions." 47 U.S.C. § 153(40). We note that carriers that have fewer than 10,000 local telephone lines in service in a state are not required to report those lines on FCC Form 477, but may file the data on a voluntary basis. There were 12

In 14 states, ten or more CLECs reported serving local telephone service customers. See Table 10.

- By comparison to the roughly 192 million fixed-facility[11] switched access lines in service, the 88 providers of mobile wireless telephone services that reported information served about 122 million subscribers as of the end of December 2001.[12] About 5% of these subscribers received their service via a reseller of mobile wireless telephone service. See Table 11.

- The Commission's data collection program requires CLECs and ILECs to identify each zip code in which the carrier provides local telephone service to at least one end-user customer.[13] As of December 31, 2001, at least one CLEC was serving customers in 62% of the nation's zip codes. About 91% of United States households resided in these zip codes. Moreover,

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voluntary ILEC filings and 13 voluntary CLEC filings of state-specific data as of December 31, 2001. In the course of our five data collections to date, the number of voluntary ILEC filings has varied between 7 and 13, and the number of voluntary CLEC filings has varied between 13 and 53.

[11]Fixed-facility local telephone service includes service provided over wireline or fixed wireless local-loop technology.

[12]Facilities-based providers with fewer than 10,000 mobile wireless telephone service subscribers in a state (measured by revenue-generating handsets in service) are not required to report. A facilities-based mobile wireless telephone service provider serves subscribers using spectrum licenses that it has obtained or manages.

[13]CLECs and ILECs are required to report, for states in which they have at least 10,000 local telephone lines in service, lists of zip codes where they have subscribers. Providers of mobile wireless telephone service do not report zip codes.

multiple carriers reported providing local telephone service in the major population centers of the country. See Table 12, Table 13, and the map that follows Table 14.

- In Florida, Georgia, Michigan, New York, and Texas, at least one-quarter of zip codes had seven or more reporting CLECs. By contrast, 13% of nationwide zip codes had seven or more reporting CLECs. See Table 14.

As other information from FCC Form 477 becomes available, it will be routinely posted on the Commission's Internet site. We invite users of the information presented in this statistical summary to provide suggestions for improved data collection and analysis by:

- Using the attached customer response form,
- E-mailing comments to jeisner@fcc.gov,
- Calling the Industry Analysis and Technology Division of the Wireline Competition Bureau at (202) 418-0940, or
- Participating in any formal proceedings undertaken by the Commission to solicit comments for improvement of FCC Form 477.

Table 1
End-User Switched Access Lines Reported

Date	ILEC Lines	CLEC Lines	Total	CLEC Share
December 1999	181,307,695	8,194,243	189,501,938	4.3 %
June 2000	179,761,930	11,557,381	191,319,311	6.0
December 2000	177,683,672	14,871,409	192,555,081	7.7
June 2001	174,485,706	17,274,727	191,760,433	9.0
December 2001	172,628,691	19,653,441	192,282,132	10.2

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Table 4
Reporting Incumbent Local Exchange Carriers
(End-User Switched Access Lines in Thousands)

Date[1]	ILECs Reporting	Total Lines	End-User Lines	Lines Provided to Other Carriers					
				Resold Lines	UNEs without Swithing	UNEs with Swithing	Total UNEs	Total UNEs and Resold Lines	Percent of Total Lines
Dec 1997	9	159,008	157,132	1,743			133	1,876	1.2%
Jun 1998	8	161,810	159,118	2,448			244	2,692	1.7
Dec 1998	7	164,614	161,191	3,062			361	3,423	2.1
Jun 1999	7	167,177	162,909	3,583			685	4,268	2.6
Dec 1999	168	187,294	181,308	4,494	1,004	489	1,493	5,987	3.2
Jun 2000	159	188,171	179,762	5,098	1,696	1,616	3,312	8,409	4.5
Dec 2000	166	188,346	177,684	5,388	2,436	2,838	5,274	10,662	5.7
Jun 2001	156	186,825	174,486	4,417	3,161	4,761	7,922	12,340	6.6
Dec 2001	164	186,111	172,629	4,021	3,680	5,781	9,461	13,482	7.2

Note: Figures may not add to totals due to rounding

[1] Data for December 1997 through June 1999 are from Common Carrier Bureau voluntary surveys. Starting with December 1999, data are from FCC Form 477 filings.

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